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MESSAGE FROM THE IPPS PRESIDENT

Dear IPPS Members,

Grab a bright marker and color in the days of June 7-12, 2011 on your calendars. These are the dates of our next grand meeting, the 11th World Congress on Parasitic Plants. The venue is set in the beautiful small town of Martina Franca, Italy. Although next summer may seem like the distant future, it will be here before we know it, and it's not too early to start planning. Certainly the lead organizers, Maurizio Vurro (Local Arrangements) and Hanan Eisenberg (Program Chair), have already been busy and preparations will continue over the next several months. Participants can start their planning by visiting the congress website (http://ipps2011.ba.cnr.it/) to get more information and pre-register to ensure that you receive timely notices about registration and abstract submission deadlines. Although the congress program is still taking shape, it promises to be exciting. Just a quick glance at the contents of this newsletter reflects the rapid progress in the world of parasitic plant science. From the news briefs to the literature section you can see evidence of breakthroughs in applied and basic research on parasitic plants. All this and more will be showcased in Italy next year.

The new IPPS website (http://www.parasiticplants.org/) has now been active for six months. The site has had over 3,500 visitors from countries around the world. I know from the comments I've received that the site is reaching far beyond the membership of our society and we should continue efforts to reach out to the rest of the world to further the society's mission of educating the public about parasitic plants. We should also consider how the website can be used to enhance research collaboration and productivity. I welcome your comments and suggestions (and parasite photos!) on ways to further improve the site's effectiveness.

Sincerely,
Jim Westwood, IPPS President
westwood@vt.edu

RAFFLESIA IN THE PHILIPPINES: AN ERA OF DISCOVERY

I wish to report here some amazing cases of discovery in the 'Queen of the Parasites', *Rafflesia*, particularly with regard to the Philippines. This genus boasts the largest flower in the world and is perhaps equally infamous for its foul smell. This reputation was derived from *R. arnoldii* of Sumatra whose flower is over one meter in diameter. The discovery of this species in 1818 by Sir Stamford Raffles and Dr. Joseph Arnold was reported by Robert Brown in 1822. Actually, *Rafflesia* was first discovered by Louis Deschamps in Java between 1791 and 1794 but his notes and illustrations, seized by the British in 1803, were not available to western science until 1861. By the turn of the 20th century, six more species were described (three from Sumatra, two from the Philippines, one from Borneo). Between 1910 and 1918, five new species accounts were published for *Rafflesia* from Borneo and peninsular Malaysia. A long hiatus then ensued until Dr. Willem Meijer described five species in 1984. Finally, in 1989 another *Rafflesia* enthusiast, Dr. Kamarudin Mat Salleh, described *R. tengku-adlinii* from Borneo. The beautifully illustrated book 'Rafflesia of the World' by J. Nais (2001) lists 18 species for the genus: in Borneo (7), Sumatra (6), Philippines (2), Peninsular Malaysia and Thailand (2), and Java (1).

One would think that a plant genus as conspicuous as *Rafflesia*, known for over 200 years and wonderfully documented in a book published in 2001, would be 'well-covered.' But in the year following the book's publication, the 'world order" for *Rafflesia* changed abruptly. A flower of a previously undescribed species of *Rafflesia* was seen by members of a conservation group (The Antique Outdoors) in Sibalom Natural Park, Antique Province, on the island of Panay. They informed Dr. Julie Barcelona, then of the National Museum of the Philippines, who, along with Dr. Edwino Fernando of the University of the Philippines at Los Baños, named it *R. speciosa*. This sparked a flurry of media attention and generally raised the awareness of many Filipinos about this botanical wonder specifically, as well as their biological heritage in general.

Up until 2002, the Philippines were thought to harbor just two species of *Rafflesia*: *R. manillana* of Luzon and Samar Islands and *R. schadenbergiana* of Mindanao which has flowers reaching 80 cm in diameter. Within three years, another large-flowered species was discovered in Mindanao, but it was clearly different than *R. schadenbergiana*. This species, which occurred in Compostella Valley Province, was named *R. mira* by Dr. Edwino Fernando and Perry Ong in 2005. Dr. Domingo Madulid published the name *R. magnifica* for the same taxon: however, it appeared later that year and thus it should be considered a synonym. Also in 2005, Renee Galang discovered a second *Rafflesia* on Panay and together with Dr. Madulid named it *R. lobata* for the lobed, open diaphragm of the flower. At this point, the Philippines boasted five *Rafflesia* species.

A mammalogist named Danny Balete collected a small-flowered *Rafflesia* in the Bicol Region of southern Luzon but at the time (1991) he thought it was *R. manillana*. When shown living specimens of that species in 2002, he knew the Bicol *Rafflesia* was different. In 2006 Dr. Barcelona and colleagues published this new species in his honor, *R. baletei*. This species also demonstrates how '*Rafflesia* fever' can sometimes go head to head against taxonomic nomenclatural rules. Unaware of a paper already in press describing *R. baletei* from the adjacent Mt. Isarog, a group of researchers from the Camarines Sur State Agricultural College (now Central Bicol State University of Agriculture) proposed the name '*R. irigaense*' for a population of *Rafflesia* discovered by a mountaineer, Mr. Dominico Bagacina, on the nearby Mt. Asog. In an attempt to commemorate Mt. Iriga (= Mt. Asog), and likely to promote regional pride and ecotourism, this name was proposed at a meeting at the National Museum of the Philippines. This was subsequently reported in the *Philippine Daily Inquirer* newspaper. But alas, reporting plant names in newspapers does not constitute valid publication, so the name *R. baletei* stands.

More nomenclatural funny business ensued in 2007. Mount Banahaw in Luzon, a popular destination for mountaineering and religious groups, seemed an unlikely spot to find a new species of *Rafflesia*. But this is exactly what occurred – in fact three times! In 2007, Drs. Barcelona and Madulid and their colleagues independently published names for this *Rafflesia* (*R. banahaw* and *R. banahawensis*, respectively). Further investigation by Dr. Barcelona showed, however, that this species was the same as the one already named by Blanco in his Flora de Filipinas (1845) – *R. philippensis* found in Monte de Majaijai (an old name for Mt. Banahaw). Yes, botanists must, at times sink names they themselves proposed! The year 2007 was also exciting because *R. schadenbergiana*, not seen since 1882 and presumed extinct, was seen flowering in Bukidnon Province of Mindanao. Only a few infected *Tetrastigma* vines are known, so this large-flowered species is critically endangered.

In 2005, a *Rafflesia* was discovered by a villager named Sumper Aresta from the Cagayan Province of northern Luzon. Julie Barcelona and collaborators collected the type of the eighth Philippine *Rafflesia* species, naming it *R. leonardi* in 2008 in honor of Leonardo Co, an expert on the flora of the Sierra Madre of Luzon where this species occurs. It differed from *R. manillana*, which grows sympatrically with it, by its larger size, a relatively smooth disk (processes absent or reduced), and the lack of windows in the floral tube.

A biodiversity survey of the Sierra Madre mountain range in northeastern Luzon in 2004 resulted in a collection of specimens of *Rafflesia* that did not fit any previously described species from the Philippines. It most resembled *R. tengku-adlinii* of northern Borneo, but differed in ramenta morphology, disk processes and anther number. In 2009, Dr. Barcelona and coauthors named this species *R. aurantia* for its orange colored flower. The species is known only from only one population in Quirino Protected Landscape – a bit of a misnomer given that portions of this region are being impacted by gold and copper mining.

One could end this incredible story of discovery here and be impressed that the Philippines has now surpassed Borneo in *Rafflesia* species diversity (nine total). But the saga continues. Just this year, during a small-mammal survey conducted by staff of the Philippine Eagle Foundation and the Field Museum in Chicago, another small-flowered species of *Rafflesia* was discovered in Mindanao by Danny Balete – a fellow who has now found three new species of this parasite! The scientific name cannot be mentioned in this account because the paper describing it is not yet published. Suffice it to say that this species is one of the most remarkable yet seen, not by its size (for indeed it is the smallest in the genus) but by other unusual morphological features.

Figure: Although *Rafflesia* is famous for having the largest flower in the world, some species, such as this *R. baletei* from Mt. Iriga (Mt. Asog), Camarines Sur Province in the Philippines, has a flower measuring only 12 cm in diameter. Photo by Dan Nickrent.

Since 2003, only two other *Rafflesia* species have been described from regions outside the Philippines: *R. bengkuluensis* (Sumatra) and *R. azlanii* (Peninsular Malaysia). Could this flurry of discovery in the Philippines simply be a function of the number of people looking for this plant or to greater intrusion into forested areas? Are there more species yet to be discovered in Indonesia and Malaysia? As amazing as it may seem, there is anecdotal evidence that even more species of *Rafflesia* exist in the Philippines. So the lesson to learn from this is that many tropical regions of the world remain woefully under-explored. We should also appreciate the power of many eyes trained to a particular search image. The indigenous people often already know about *Rafflesia*, but their knowledge has simply not been transferred to western scientists. If we value biodiversity, or at least concede the possibility that future generations will, we must continue to support efforts that document and preserve it in areas rich with such botanical treasures.

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LITERATURE HIGHLIGHTS

EVIDENCE FOR NUCLEAR THEFT

Parasitic plants are known thieves; they rob water, nutrients, and even genes from host plants. However the origin of the stolen genes is typically mitochondria, so it may have been assumed that the security surrounding the nucleus is much tighter, until now. A recent paper in Science by Yoshida *et al.* reported clear evidence that *Striga hermonthica* obtained a nuclear gene from its sorghum host or closely related species (Yoshida *et al.*, 2010a).

S. hermonthica is a devastating parasitic plant which infects Poaceae species including major crops such as sorghum, maize and rice. As *S. hermonthica* belongs to the eudicot Orobanchaceae family and only infects monocot plants, the authors reasoned that it may be possible to detect nuclear horizontal gene transfer (HGT) if it occurs by identifying monocot specific genes in the *S. hermonthica* genome. From a large scale expressed sequence tag (EST) analysis of *S. hermontica* about 17,000 non-redundant sequences were examined (Yoshida *et al.*, 2010b). Remarkably, one gene, designated *ShContig9483*, shows high similarity to genes in sorghum but has no homologs in eudicots. Genomic analysis of *ShContig9483* shows that the high similarity (more than 80%) extends outside of the open reading frame, indicating its relatively recent translocation.

What could be the mechanism of nuclear HGT by *S. hermonthica*? Parasitic plants are able to connect their own vasculature to that of their hosts to obtain nutrients and water. It is also known that mRNA can be transferred from hosts to parasites, probably through their connected phloem (Roney, *et al.,* 2007). Thus one possibility is that *ShContig9483* was originally captured by *S. hermonthica* as mRNA. Interestingly, Yoshida *et al.* found 13 consecutive adenine (A) nucleotides immediately after the 3' end of the *ShContig9483* genomic region that is homologous to the sorghum genes. This sequence may indicate that a poly-A tail was added to a transcriptional unit of the originally transferred monocot gene. Consistent with this hypothesis, a sorghum EST clone was found to contain a poly-A tail attached 30bp downstream of the homologous region.

The comparative genomics analysis of a eudicot parasite and its monocot hosts detected clear evidence for nuclear HGT of a monocot specific gene. As this method is not able to detect nuclear HGT of genes that are common to both eudicot and monocot plants, the frequency of nuclear HGT in *S. hermonthica* is not clear. The percentage of monocot specific genes in a monocot genome is around 20% and as *S. hermonthica* is unlikely to discriminate the origin of genes, we suspect that more nuclear HGT will be found if other genes are investigated in detail.

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Ken Shirasu and Satoko Yoshida, RIKEN, Plant Science Center, 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, 230-0045, Japan.

CELLULAR INTERACTIONS AT THE HOST-PARASITE AND POLLEN-PISTIL INTERFACES IN FLOWERING PLANTS

Research into the host-parasite interface from the cellular to the molecular level has proliferated in recent decades; however host plant resistance mechanisms are multifaceted, complex, and vary between host species (Serghini *et al*., 2001; Rubiales, 2003; Labrousse *et al*.. 2004). This has impeded the identification of durable resistance traits in the battle against infestation by parasitic weeds. Characterising host resistance pathways using natural host-parasite systems is one relatively unexplored avenue of research that may yield untapped sources of resistance (Thorogood and Hiscock, 2010). Similarly, comparing host-parasite interactions with well characterised processes such as the pollen-pistil interaction in flowering plants may draw interesting new parallels.

To address the knowledge gap between natural and agricultural host-parasite systems, Thorogood and Hiscock (2010) recently examined the compatibility of natural *Orobanche*-host plant interactions, and identified discrete early-acting and late-acting incompatibility responses. This complemented recent research which underscored the importance of layers of incompatibility in the resistance of various non-host eudicots to *Striga hermonthica* (Yoshida and Shirasu, 2009). Interestingly, self-incompatible pollen-pistil interactions are also categorised by early-acting and late-acting mechanisms of pollen tube rejection (Hiscock and Allen 2009), leading the authors to speculate that further parallels may be drawn between host-parasite and pollen-pistil interactions in flowering plants.

Pollen-pistil interactions in flowering plants comprise a series of complex cellular interactions involving a continuous exchange of signals between the haploid pollen and the diploid maternal tissue of the pistil (Hiscock and Allen, 2009). Significant progress has been made in elucidating the molecular identity of these signals and the cellular interactions they regulate. These events have been particularly well studied at the cellular and molecular level in species with self-incompatibility (SI) systems, which trigger the arrest in development of incompatible pollen on the stigma. The possibility of a consensus in cellular programmes among these SI systems, and incompatible host-parasite interactions in flowering plants remains to be explored.

Technological advances have greatly facilitated the identification of components involved in complex cellular interactions such as the pollen-pistil interaction. For example advances in microarray technology, such as the availability of genome-wide Affymetrix arrays for *Arabidopsis* and rice, coupled with the development of reliable cDNA subtraction techniques, such as suppression-subtractive hybridization (SSH), have facilitated the transcriptomic profiling of genes with expression specific to, or up-regulated in, pollen and pistil tissues (Hiscock and Allen, 2009). This has opened up new avenues for pollen-pistil interaction research, particularly the opportunity to identify candidate genes involved in pollen-stigma interactions, and potentially shared components of pollen-stigma signalling pathways among different species. Furthermore, Next Generation Sequencing using the Illumina approach will facilitate sequencing the entire transcriptome of multiple samples simultaneously to produce quantitative data without prior knowledge of the genome, in theory making it suitable for any species.

Genomic and sequencing technologies such as these offer great hope for unraveling cell signalling networks involved in pollen-stigma interactions. Assuming parallels exist among complex cellular interactions in flowering plants, drawing upon new directions in pollen-pistil interaction research may be fertile new ground for generating hypotheses and new avenues of research into host resistance to parasitic plants.

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OBITUARY

ALFRED M. MAYER (1926-2010)

Professor Alfred Mayer was an Emeritus Professor of Plant Sciences at the Hebrew University of Jerusalem in Israel, who dedicated his last twenty years to the study of parasitic plants.

Alfred Mayer was born in Germany in 1926, and as a son to a Jewish family found a safe haven in Holland after the rise of the Hitler regime in Germany. Later his family managed to escape from Holland prior to its occupation, so he finished school in London, where he lived during the rest of the war. He obtained his Ph.D. from the University of London, and became a member of the department of Botany of the Hebrew University of Jerusalem in 1952. In 1997 he officially retired after a fruitful academic and administrative career, but his scientific career continued until very recently, combining pioneering and productive research in phytochemistry, plant biochemistry and physiology, with a significant contribution also to the understanding of parasitic plants.

Outstanding are two research topics in which Mayer was deeply involved and became internationally acknowledged: One is the biochemistry of seed germination, which peaked when he published the now ‘classic’ book ‘The Physiology of Seed Germination’, and the other is polyphenol oxidases, which peaked when he was awarded an Honorary Doctorate from the University of Bordeaux for his contribution to the wine industry.

After his formal retirement, Professor Mayer put many efforts into parasitic plant research. His research included a detailed analysis of the changes in broomrape seeds during conditioning and germination. He then moved on to the study of enzymatic activities during haustorium penetration, comparing it with the invasion mechanisms of pathogenic fungi.

He passed away at the age of 83 while some research projects on *Orobanche* are still in progress, including studies of the involvement of jasmonate in host resistance to *Orobanche* infection, and the possible use of various chemical agents to control broomrape germination and infection.

Mayer initiated and laid the foundations of many of the physical and academic aspects of the Institute of Life Sciences of The Hebrew University of Jerusalem, and at the same time devoted much of his time to education and teaching. In fact he has been teaching at the university for more than fifty years, always updated with cutting edge knowledge, and creative in challenging complicated biological systems.

His scientific enthusiasm, pioneer ideas, and gentle personality will be missed.

Danny Joel, Newe-Ya'ar Research Center, ARO, Haifa 31900, Israel.

CONGRATULATIONS

'Bristol botanist wins Linnean Society prize'

Dr Christopher Thorogood has been awarded the 2010 Irene Manton Prize by The Linnean Society of London for his thesis on parasitic plants. (Abstract below)

The Irene Manton Prize is awarded for the best thesis in botany examined for a doctorate of philosophy during a single academic year (September to August). Dr Thorogood was named the winner by the President of The Linnean Society, Dr Vaughan Southgate, at the 222nd Anniversary Meeting of the Society this week.

Dr Christopher Thorogood conducted his doctoral research under the supervision of Professor Simon Hiscock at the University of Bristol's School of Biological Sciences. His thesis entitled 'Host Specificity and speciation in the holoparasitic angiosperm *Orobanche minor* Sm. (Orobanchaceae)' was largely based on his own ideas and his passionate interest in parasitic plants, particularly broomrapes

In addition to his scientific achievements, Chris is also a botanical illustrator and has exhibited botanical water-colour and oil paintings at the University of Bristol Botanic Garden. He used these skills to illustrate parts of his thesis with pen and ink drawings of floral anatomy, and other features of parasite morphology

University of Bristol, 26 May 2010.
http://www.bristol.ac.uk/news/2010/7035.html

Watercolour of broomrapes
by Chris Thorogood

NEWS

STRIGA QUARANTINE LIFTED IN SOUTH CAROLINA AFTER A HALF CENTURY

A milestone event will be marked this year in the effort to eradicate *Striga asiatica* from the US. After finding no new plants in 2009, federal and state plant protection officials have initiated a process to lift the quarantine restrictions on the last of the infested area in South Carolina, signaling the final phase of a 53-year eradication effort. This is subject to continued survey. If new finds of witchweed occur in 2010 or later, infested acres may have to remain under restriction or be re-restricted. This event is noteworthy because it reflects the persistence of *Striga* and the time commitment needed for eradication of a parasitic weed.

An infestation of *S. asiatica* was first reported in North Carolina in 1956 and subsequent surveys revealed that a total of 175,000 ha were infested at the peak of the outbreak, spanning parts of both North and South Carolina (Eplee, 1992). The US implemented an eradication program that has relied on a combination of monitoring, public awareness, containment and devitalization of seeds in the soil by ethylene gas to trigger suicidal germination. Surveys in 2010 revealed no new *Striga* plants in South Carolina, although 728 ha in North Carolina continue to be infested and will require continued eradication efforts for several more years. Even in South Carolina, the plan calls for another 10 years of monitoring to ensure that no *Striga* appears undetected to reestablish the infestation.

It is interesting that in 1992, after substantial success in reducing the area of *Striga* infestation, it was predicted that lifting of quarantine restrictions for the entire Carolinas infestation would be possible by 1995 (Eplee, 1992). The elimination of all plants in a *Striga* population is clearly a significant challenge. Officials are anticipating that escalating demand for biofuel ethanol from corn will entice farmers to rotate back to corn after several years of planting non-host crops, and could result in reappearance of *Striga*.

Reference:

Eplee RE. 1992. Witchweed (*Striga asiatica*): an overview of management strategies in the USA. Crop Protection 11, 3-7.

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PRESS RELEASES

'Affordable solution to costly pests'

Extract:
LAKE VICTORIA, Kenya, Apr 16 (IPS) - The International Centre for Plant Physiology and Ecology (ICIPE), based at Mbita, on the Kenyan shores of the world's second-largest freshwater body, is advocating 'push-pull cultivation' as the answer to feeding future generations in Africa.

Up to 30,000 small farmers in East Africa, mostly in Kenya, have adopted this natural method of controlling pests and weeds in maize, the staple crop. Push-pull cultivation intersperses the desmodium plant with maize in a plot, and plants napier grass as a border on all sides. The desmodium repels, or pushes, the stem borer from the maize, and controls the dominant weed, *Striga*; the napier grass attracts, or pulls, the borer towards it.

Approximately 25,375,000 hectares in sub-Saharan Africa are under maize cultivation, of which 6,122,000 ha are affected by the parasitic *Striga* weed which strangles the maize plant. East Africa loses US$7 billion worth of maize worth of maize due to *Striga* and around $5-6 billion from the cereal parasite stem-borer insect, according to ICIPE.

The chemical-free system against them was developed by ICIPE scientists in collaboration with Rothamsted Research in the United Kingdom, the Kenya Agricultural Research Institute and various national partners, with funding from Kilimo Trust (East Africa), Gatsby Foundation (UK) and Biovision (Switzerland).

While farmers may opt to use fertiliser on a push-pull field, desmodium both retains moisture in the soil and fixes its nitrogen content at the rate of 110 kilogrammes per hectare per year. The plant remains in the field after the maize is harvested, and is simply trimmed back to allow new maize to be planted. 'This is the answer to Africa's food security,' says Dr. Zeyaur Khan, principal scientist developing the push-pull project at ICIPE. 'This will provide the magic number of $2 and over in Africa.' Khan says farmers in Africa will stop migrating to cities in search of incomes if they can earn more than $2 a day in their fields. Khan says the production of maize by farmers using the method has gone up from less than one tonne per hectare previously to 3.5 tonnes per ha, an increase that ensures year-long food for smallholder family. Both desmodium and napier are fodder grasses that also help cattle and milk production, besides giving extra income through the sale of its seeds.

At Ebukanga village near Mbita, 45 year old Agnes Mbuvi says her production of maize on her 50 by 40 metre plot has gone up from half a bag (45 kilos) to a remarkable 6 bags (540 kilos) of maize per harvest. 'I have enough milk throughout the year, enough food, the soil is easy. I am happy,' she says. Mbuvi, a widow, also adds that the extra income from the sale of surplus maize and milk has helped her educate her children. Not far away, 50 year-old Elfas Ameyo, a part-time plumber, says his even smaller 'push-pull' plot now gives him 2 bags (180 kg) of maize, instead of the one 'debe' (16 kg tin) he would get previously. 'School education helps in changing the minds of people,' he says, explaining why his neighbor has not yet adopted the system in spite of seeing Ameyo's huge increase in yield. 'We don't need much money, we need appropriate technology,' says Khan, who is critical of multinational seed and fertiliser agencies and international donors supporting the giving of seed and chemical fertilizers to farmers in Africa.

ICIPE is now testing the efficacy of the push-pull method in rice cultivation, and against the cotton bollworm, both features that bode good news for millions of Asia's small farmers. In the context of climate change, ICIPE is encouraging farmers to plant cotton as a second crop in addition to a food crop. The roots of the cotton plant also produce chemical flavinoids and isoflavinoids, similar to the desmodium root, that help kill the *Striga* weed.

Keya Acharya, Inter Press Service, April 2010.
For full version see:
http://ipsnews.net/news.asp?idnews=51074

'Drought tolerant and *Striga*-resistant maize for Ghana'

Four drought tolerant and *Striga*-resistant corn varieties developed by the International Institute of Tropical Agriculture (IITA) and the National Maize Program of Ghana were released to Ghanaian farmers recently. Three early maturing lines EVDT-W 99 STR QPM Co; TZE-W Pop STR QPM C0; and TZEE-W Pop STR QPM C0 and one intermediate maturing, drought tolerant QPM hybrid were released by the Ghanaian Crops Research Institute in collaboration with the Savannah Agricultural Research Institute and Industrial Research of Ghana.

'With the release of these varieties, farmers in Ghana now have options not only in terms of maturity, grain color and type but also varieties which can tolerate the two major stresses which prevent increased maize production and productivity in the sub-region,' IITA Maize Breeder, Dr. Baffour Badu-Apraku, said. In addition, Ghana Grains and Legumes Development Board of the Food and Agriculture Ministry, Dr. Robert Asuboah is optimistic that these 'insurance' crops will enable farmers to produce crops and profit during periods of drought.

For details, see the article at: http://www.afriquejet.com/news/africa-news/ghanaian-farmers-get-drought-tolerant-maize-to-boost-production-2010040347069.html

From Crop Biotech, April 8, 2010.

'New varieties to boost maize output in West and Central Africa'

Maize production in West and Central Africa is set to get a much-needed boost with the release of improved varieties by the Nigeria National Variety Release Committee. The varieties address many of the major constraints to maize production such as drought, low soil fertility, pests, diseases, and parasitic weeds. Researchers developed the varieties through conventional plant breeding by tapping naturally-available traits. The varieties were developed by the International Institute of Tropical Agriculture (IITA) in partnership with the Institute for Agricultural Research (IAR) of the Ahmadu Bello University in Zaria and Institute of Agricultural Research and Training (IARandT) of Obafemi Awolowo University in Ile Ife, Nigeria.

The released maize include 13 open-pollinated varieties of extra-early-, early-, intermediate-, and late-maturity with resistance to the parasitic weed *Striga hermonthica* and stem borers, tolerance to drought, and with good adaptation to sub-optimal soil nitrogen. Four hybrids with drought-tolerance have also been released.

The committee also approved two *Striga*-resistant and two white and two yellow productive hybrids developed at IITA in partnership with Premier Seeds Nigeria Limited. The company will commercially produce and market these hybrids.

Abebe Menkir, IITA maize breeder, says that the release of these varieties will hasten the adoption of improved maize cultivars by farmers in Nigeria, consequently increasing yields, raising farm incomes, and improving food security. The release of the improved varieties has sparked renewed optimism for maize farming in the region.'These varieties have the potential to provide farmers with opportunities to overcome the challenges to maize production in West and Central Africa,' he added. Maize farmers often suffer from infestation of parasitic weeds and prolonged droughts, rendering their fields harvestless and farming households with little food and insufficient income for most of the year. Low soil fertility is often as devastating as droughts, while stem borers in the forest regions also hurt productivity.

Every year, IITA distributes improved open-pollinated varieties and hybrids to national partners and the private sector within and outside of WCA through regional trials. These trials have been used as vehicles for selecting promising varieties and hybrids adapted to specific conditions in the different countries for extensive testing and later release.

IITA
15 February, 2010.

'*Striga* resistant varieties to boost sorghum yields'

Extract:
In April, scientists in eastern and central Africa embarked on identifying sources of resistance to *Striga*, a parasitic weed. Supported by the Association for Strengthening Agricultural Research in Eastern and Central Africa (Asareca), the researchers from Sudan, Kenya, Eritrea and the International Crop Research Institute (ICRISAT) are using biotechnological tools in locating and identifying Quantitative Trait Loci (QTL) that gives resistance to *Striga*. QTL is a statistical method that links two types of information phenotypic data (trait measurements) and genotypic data (usually molecular markers) - in an attempt to explain the genetic basis of variation in complex traits.

According to Dr Charles Mugoya, the programme manager of the Agro biodiversity and biotechnology programme of Asareca, knowing the location and identification of QTLs for *Striga* resistance is a useful tool in aiding marker assisted breeding/selection (MAB or MAS) of sorghum for

Striga resistance. MAS is an indirect selection process where a trait of interest is chosen not based on the trait itself but on a marker (morphological, biochemical or one based on DNA/RNA variation) linked to it. So far, QTLs underlying different resistance phenotypes have been identified and the scientists are now backcrossing populations to generate *Striga* resistance QTLs into farmer preferred sorghum varieties.

Mugoya said *Striga hermonthica*, also locally known as the witchweed, is a major constraint to sorghum production in particular and cereal production in general, especially in more marginal areas like semi-arid regions, where continuous cropping as a result of population pressure, has led to widespread soil infertility. The weed is genetically diverse and several factors contribute to its diversity. These include a high turnover of several generations of witch weed populations leading to high genetic diversity; hybridisation; broad geographic distributions; long distance dispersal and locally adapted host races.

'Owing to its great potential genetic diversity, efforts to control it, through conventional breeding to generate *Striga* resistant varieties or agronomic practices to reduce the *Striga* seed bank in the soil, have been ineffective and *Striga* continues to be a menace, with reported cases of up to 100 per cent sorghum yield loss in the region,' he noted.

The project promises to increase sorghum productivity in order to address food insecurity and poverty in East and Central African semi-arid zones and boost yields by at least by 20 per cent.

Steven Tendo,
Saturday Monitor, 9 June, 2010.
For full version see:
http://www.monitor.co.ug/Magazines/Farming/-/689860/934808/-/xc1k6t/-/

'Nigerian scientists introduce two new cowpea varieties'

Extract:
Nigerians scientists have released two new and improved cowpea varieties to farmers as part of efforts to raise production and improve farmer incomes in Nigeria's savannah region, an official of the International Institute of Tropical Agriculture (IITA), Ibadan has said.

The varieties - IT89KD-288 and IT89KD-391 - were developed by scientists working at the Institute, in collaboration with the Institute for Agricultural Research of Ahmadu Bello University, Zaria; the University of Maiduguri, Borno and the Agricultural Development Programmes of Borno, Kaduna, Kano, and Katsina States.

Godwin Atser, the West African corporate communications officer of the IITA, said both varieties have proven superiority over the current lines being cultivated and aim to overcome the challenges faced by cowpea farmers in the country. 'For instance, IT89KD-288 (now SAMPEA-11) is a dual-purpose cowpea variety with large white seeds and a rough seed coat.' Mr. Atser said. 'It has combined resistance to major diseases including *Septoria* leaf spot, scab, and bacterial blight, as well as to nematodes, and tolerance to Nigeria's strain of *Striga gesnerioides* - a parasitic weed that severely lowers yield.'

Alpha Kamara, an IITA agronomist who is leading efforts to rapidly disseminate the varieties to farmers, added: 'It also has a yield advantage of at least 80% over the local varieties.'

Emmanuel Ogala, April 19, 2010
For full version see:
http://234next.com/csp/cms/sites/Next/News/5556524-147/nigerian_scientists_introduce_two_new_cowpea.csp#

'Africa: scientists to develop drought-resistant cowpea'

Scientists conducting research have discovered a means of developing a variety of cowpea that is resistant to drought. The improved variety when introduced to farmers would help overcome constraints of disease, parasitic weeds, insect pest and drought especially in Sub-Saharan Africa.

The researchers from the International Institute for Tropical Agriculture (IITA), University of California, Riverside separately discovered that a portion of the cowpea known as the genome is responsible for disease and drought resistance among other. This discovery has led to the researchers' working on improving the resistance of the plant to drought.

Known for its rich protein content, 70 per cent of world cowpea is grown in the savannah region of Africa and is a source of incomes to its consumers. However, cowpea faces several production constraints among which are diseases, insect pests, parasitic weeds such as *Striga*, and drought which is becoming increasingly important in the cowpea producing zones of sub-Saharan Africa.

Tina A. Hassan
Daily Trust, 30 March 2010.

'Wetlands organization says rival group's planting of parasite akin to a 'restoration train wreck'.

A lengthy article in 'The Argonaut' by Gary Walker describes the disagreement between the Ballona Institute, and the Friends of the Ballona Wetlands over the introduction by the Institute, of *Cuscuta salina* to state-owned Ballona Wetlands in California, USA. The Friends complain that it is tending to eradicate *Jaumea carnosa* (Asteraceae) and *Salicornia virginica* (Chenopodiaceae). With additional posted comments.

http://www.argonautnewspaper.com/articles/2010/06/25/news_-_features/top_stories/2p.txt

THESIS

Host specificity and speciation in the holoparasitic angiosperm *Orobanche minor* Sm. (Orobanchaceae). Christopher John Thorogood, PhD, School of Biological Sciences, University of Bristol (supervised by Simon Hiscock and Fred Rumsey) April 2009.

Abstract: The holoparasitic angiosperm *Orobanche minor sensu lato* parasitizes a taxonomically diverse range of angiosperms, and has therefore been considered to be a host-generalist. However even host-generalist parasites may show host specificity on a local or regional scale. This study examines the host specificity of *O. minor*, and its potential to drive population divergence and speciation in this parasitic plant. Divergent host ecology appears to have genetically isolated intra-specific taxa *O. minor* var. *minor* and *O. minor* ssp. *maritima* on their local hosts, red clover (*Trifolium pratense*) and sea carrot (*Daucus carota* ssp. *gummifer*) respectively. Inter-simple sequence repeat (ISSR) marker-based data provided strong evidence for genetic divergence of morphologically cryptic populations. Patterns of genetic divergence were reinforced by phylogenetic analyses based on sequence-characterised amplified region (SCAR) markers derived from ISSR loci, which clearly differentiated host-specific clades. To explore the possibility of a physiological basis for population divergence, host-parasite interactions were then examined by cultivating clovers and carrots in Petri dish bioassays ('rhizotrons'), and inoculating them with *Orobanche*. A series of histological studies were carried out, and compatible and incompatible pathways of parasite development were characterised, which suggested that host-resistance responses may determine early patterns of host specificity. Reciprocal infection studies identified increased fitness of populations when cultivated on their local hosts, indicating that cryptic taxa in fact comprise adaptive host-specific races. Microscopic techniques, coupled with controlled pollinations, identified a high potential for self-fertility in *O. minor*, indicating that selfing and inbreeding may reinforce these patterns of adaptive population divergence by isolating host-specific populations from gene flow. Finally, this analysis was extended by sampling populations from multiple hosts, across a broad geographic range. Sequence data identified an exotic host-generalist lineage and a native host-specialist lineage of *O. minor*, suggesting genetic structure in this species is defined by both host specificity and geography. These lineages may have hybridised following anthropogenic activity and host-shifts. Using the host-generalist holoparasite *O. minor* as a model, this study clearly demonstrates that host-driven divergence may be an important catalyst for speciation in parasitic plants.

BOOK REVIEW

Kuijt, J. 2009. Monograph of *Psittacanthus* (Loranthaceae). Systematic Botany Monographs 86: 1-361.

Having reached the age when many botanists would have willingly (or unwillingly!) slowed their rate of publication, Job Kuijt has again demonstrated his unparalleled knowledge and unbounded energy by producing this monograph of *Psittacanthus*. As with his monograph of *Phoradendron* (Kuijt 2003), this work summarizes and synthesizes information on a taxonomically difficult mistletoe genus. *Psittacanthus* is the most speciose New World Loranthaceae genus. It is also widespread (Mexico to Paraguay) and conspicuous with its often large and colorful bird-pollinated flowers. It (plus the related *Aetanthus*) is distinguished from other members of the family by seeds lacking endosperm. Although previous contributions to the taxonomy of the genus have been made, no modern monograph existed. Thus, all students of parasitic plants should be delighted that the author's 50+ years of experience with this group has culminated in this landmark publication. It is difficult to imagine anyone else accomplishing this goal. Previous estimates of the number of *Psittacanthus* species were gross underestimates. This monograph describes and provides illustrations for 119 species. Most remarkably, 51 of these are new. When new species named previously by the author are included, the total is 62, i.e. over half the species in the genus.

As with all the author's previous work, his strength is in the meticulous documentation of the morphology of the organisms. Most of the illustrations were prepared by the author and these are both scientifically and artistically superb. Two keys to species are provided: for Mexico / Central America and South America / Caribbean (justified because species distributions do not overlap between these regions). The keys are generally workable, usually requiring both vegetative and floral features for identification. In terms of production, the work was very well edited, being essentially free of typographical and other errors. The text is engaging and provides a cornucopia of ideas for further testing using ecological and biosystematic methods. For example, *P. ramiflorus* occurs in two geographically disjunct regions where the plants show morphological differences. A population genetics study might help determine whether these are best represented by one or two species.

Inflorescence of *Psittacanthus ramiflorus* (as *P kramerii*) Costa Rica. Photo by Mauricio Bonaficino.

Forty three species occur in Brazil (some exclusively so), thus this country represents the region where further work is needed. A recent compilation of *Psittacanthus* photographs for the Parasitic Plant Connection web site resulted in 35 species but also demonstrated that mysteries still exist (e.g., compare the photographs of *P. biternatus* from Goiás and Pará in Brazil). The author states 'I regret not having seen more species in the field and hope my presentation does not suffer unduly in consequence.' Indeed, most of the descriptions were prepared from herbarium material, but this would be inevitable for any monographer given that 23 species are extremely rare and known only from the type specimen. On a brighter conservation note, some of these species (e.g. *P. nudus* and *P. pascoensis*) may actually be more common, as documented by recent additional collections.

The species are arranged alphabetically as the author did not attempt a subgeneric classification of the genus. As properly indicated on p. 7, there is currently no species-level phylogeny of *Psittacanthus*. The author correctly acknowledges that an evolutionary interpretation of morphological character trends (e.g. dyads evolving from triads) requires a robust molecular phylogeny of the genus. This paragraph also states 'the phylogenetic affinities within the family have not been adequately resolved…', a concept which apparently predates the appearance of Vidal-Russell and Nickrent (2008). Had this work been read and cited, the statement on p. 31 regarding a possible relationship between *Psittacanthus* and *Desmaria*, *Ligaria*, and *Tristerix* would have been removed or revised. The x = 8 chromosome group of small-flowered Loranthaceae (e.g. *Struthanthus*, *Cladocolea*, *Oryctanthus*, etc.) form a well-supported clade along with *Psittacanthus*, not including the above three genera.

Despite any such minor shortcomings, this work is a remarkable achievement. Where would we be without the monographs produced by the author, such as for *Cladocolea* (Kuijt, 1975), *Oryctanthus* (Kuijt, 1976), and *Tristerix* (Kuijt, 1988) (and soon *Dendropemon*!). These works provide the taxonomic framework upon which depends further studies on the ecology, physiology, morphology, anatomy, development and phylogeny of these fascinating organisms called mistletoes.

References:

Kuijt, J. 1975. The genus *Cladocolea* (Loranthaceae). Journal of the Arnold Arboretum 56: 265-335.

Kuijt, J. 1976. Revision of the genus *Oryctanthus* (Loranthaceae). Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie. 95: 478-534.

Kuijt, J. 1988. Revision of *Tristerix* (Loranthaceae). Systematic Botany Monographs. Amer. Soc. Plant Taxonomists 19: 61 pp

Kuijt, J. 2003. Monograph of *Phoradendron* (Viscaceae). Systematic Botany Monographs. Amer. Soc. Plant Taxonomists 66: 643 pp

Kuijt, J. 2009. Monograph of Psittacanthus (Loranthaceae). Systematic Botany Monographs. Amer. Soc. Plant Taxonomists 86: 361 pp.

Vidal-Russell, R. and Nickrent, D.L. 2008. Evolutionary relationships in the showy mistletoe family (Loranthaceae). American Journal of Botany 95: 1015-1029.

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FORTHCOMING MEETINGS

A Summer School on 'Rhizosphere Signalling' is to be held 23-25 August 2010 at Wageningen, The Netherlands. Twelve keynote speakers are arranged. Additionally, there will be 20 slots for participants to present their work. For more information and registration (**deadline July 26th, 2010**) see: http://www.graduateschool-eps.info, check Summer School 'Rhizosphere Signaling'

The 5th World Cowpea Research Conference will be held on September 27 to October 2010 in Dakar, Senegal. The theme of the conference is 'Improving livelihoods in the cowpea value chain through advancement in science'. Topics of discussion include cowpea genetic improvement and use of molecular tools, human nutrition and processing, and enterprise development. Details of the conference are available at: http://cowpea2010.iita.org/ or email Christian Fatokun at c.fatokun@cgiar.org or Katherine Lopez at k.lopez@cgiar.org for direct inquiries.

The 11th World Congress on Parasitic Plants will be held at the Park Hotel San Michele in Martina Franca, Puglia, Italy, 7-12 June 2011.

The Congress continues a long tradition of regularly assembling the world's experts on parasitic plants for professional and scientific meetings, which started in 1973 with the first international meeting in Malta.

The Congress will bring together scientists representing a wide spectrum of disciplines, research approaches, and geographical representation of parasitic plant research. Assembling specialists with different perspectives, all focused around the common theme of plant parasitism, provides a stimulating environment for learning, exchanging ideas, and connecting with old and new colleagues.

Parasitic plants - both the weedy species that severely constrain agriculture and the many other non-weedy species - present unanswered questions with regard to their origin and evolution from non parasitic plants, population structures and dynamics, evolutionary pathways towards crop parasitism, ecology, physiology, molecular biology, and the structure, function and development of their haustoria.

The Congress will include presentations at the cutting edge of parasitic plant research and management of parasitic weeds. A major emphasis in the Congress will be the fostering of interaction among participants.

For further detail, see the official web-site: http://ipps2011.ba.cnr.it

GENERAL WEB SITES

For individual web-site papers and reports see LITERATURE

For information on the International Parasitic Plant Society, current issue of Haustorium, etc. see: http://www.parasiticplants.org/

For past and current issues of Haustorium see also: http://www.odu.edu/~lmusselm/haustorium/index.shtml

For information on the 11th World Congress on Parasitic Plants in Martina Franca, Italy, June 2011, see: http://ipps2011.ba.cnr.it

For the ODU parasitic plant site see: http://www.odu.edu/~lmusselm/plant/parasitic/index.php

For Dan Nickrent's 'The Parasitic Plant Connection' see: http://www.parasiticplants.siu.edu/

For the Parasitic Plant Genome Project (PPGP) see: http://ppgp.huck.psu.edu/ (Including large numbers of sequences from *Triphysaria versicolor*, *Striga hermonthica*, and *Orobanche aegyptiaca*, with BLAST capability and searchable by keyword and gene ontology terms)

For the *Striga hermonthica* EST Database see: http://striga.psc.riken.jp/strigaDB/index.php (A searchable database with BLAST, SSR and SNP searching, and gene ontology functions)

For the announcement of Gebisa Ejeta's World Food Prize, including video of Hillary Clinton's address see: http://www.worldfoodprize.org/about/about.htm

For abstracts from the 9th World Congress on Parasitic Plants see: http://www.cpe.vt.edu/wcopp/index.html

For The Mistletoe Center (including a comprehensive Annotated Bibliography on mistletoes, up to 2005) see: http://www.rmrs.nau.edu/mistletoe/

For information on the EU COST 849 Project (now completed) and reports of its meetings see: http://cost849.ba.cnr.it/

For information on the EWRS Working Group 'Parasitic weeds' see: http://www.ewrs.org/parasitic_weeds.asp

For a description and other information about the *Desmodium* technique for *Striga* suppression, see: http://www.push-pull.net/

For the work of Forest Products Commission (FPC) on sandalwood, see: http://www.fpc.wa.gov.au (Search *Santalum*)

For past and future issues of the Sandalwood Research Newsletter, see: http://www.jcu.edu.au/mbil/srn/index.html

For information on the Kilimo Trust *Striga* project see: www.thekilimotrust.org

For information on the work of the African Agricultural Technology Foundation (AATF) on *Striga* control in Kenya, including periodical 'Strides in *Striga* management' newsletters, see: http://www.aatf-africa.org/

LITERATURE

STRIGOLACTONES

A special issue of Plant and Cell Physiology (Vol 51 No. 7) has just been published on strigolactones. All papers can be downloaded free. See: http://pcp.oxfordjournals.org/current.dtl A selection of the more relevant papers will be included in the Literature section of our next issue.

MYCO-HETEROTROPHY

New Phytologist has just published a 'Special Virtual Issue' (Volume 185 No. 3) on the topic of myco-heterotrophy, containing 25 articles. See: http://www3.interscience.wiley.com/cgi-bin/fulltext/123242499/PDFSTART) These will be reviewed in some way in our next issue.

CURTIS'S BOTANICAL MAGAZINE

Volume 26 No 4 of this magazine is devoted to parasitic plants and their potential cultivation. Single copies are available from the publishers for £14.50 each via: http://www.wiley.com/bw/cservices/single.asp?site=1 The individual papers are noted below.

CORRECTION

Rodenburg, J. and Johnson, D.E. 2009. Weed management in rice-based cropping systems in Africa. Advances in Agronomy 103: 149-218. - It was wrongly suggested in the last issue of Haustorium that this paper reported *Striga* spp. as weeds in lowland rice. This should have read 'upland rice'. Our apologies - and see the new more detailed paper by Rodenburg *et al.* on this subject under Literature below.

NEW ITEMS

* indicates web-site reference only

Abdulla, M.A., Ahmed, K.A., Ali, H.M., Noor, S.M. and Ismail, S. 2009. Wound healing activities of *Rafflesia hasseltii* extract in rats. Biochemistry and Nutrition 45(3): 304-308. (Confirming the beneficial effects of *R. hasselti* extracts on wound healing.)

Aiello, N., Fusani, P., Scartezzini, F., Vender, C., Mari, A., Ciocarlan, A. and D'Ambrosio, M. In: Baricevic, D., Novak, J. and Pank, F. (Eds) 2010. Morpho-quantitative and qualitative characteristics of eyebright wild accessions. Acta Horticulturae 860: 105-108. (Studying 7 accessions of *Euphrasia rostkoviana* subsp. *rostkoviana* for their variations in morphology and in aucubin content, in Trentino, Italy.)

Akinmoladun, A.C., Obuotor, E.M. and Farombi, E.O. 2010. Evaluation of antioxidant and free radical scavenging capacities of some Nigerian indigenous medicinal plants. Journal of Medicinal Food 13(2): 444-451. (*Globimetula cupulatum* (Loranthaceae) had the highest hydroxyl radical scavenging activity of 10 Nigerian plants used in ethnomedicine.)

Albert, M., van der Krol, S. and Kaldenhoff, R. 2010. *Cuscuta reflexa* invasion induces Ca^{2+} release in its host. Plant Biology 12(3) 554-557. (Calcium release in tomato was closely associated with the *Cuscuta* haustorium.)

Alpsoy, L., Uzonur, I. Sakcali̇, M.S. and Karaman, S. 2010. Antioxidant and antimutagenic activities of *Viscum album* fruit ethanolic extract in human lymphocytes. Journal of Biotechnology 9(17): 2539-2543.

Alvarado-Rosales, D., Saavedra-Romero, L.de L. and Cárdenas-Soriano, E. 2009. (Anatomy of the interaction *Cladocolea loniceroides* (Van Tieghem) Kuijt-*Salix bonpl*andi*ana* Kunth.) (in Spanish) Ciencia Forestal en Mexico 34(106): 191-203. (*C. loniceroides* (Loranthaceae) affects at least 15 ornamental trees in Mexico City, especially *S. bonpl*andi*ana*. The haustorium is a simple wedge without necrosis.)

Ameer, O.Z., Salman, I.M., Siddiqui, M.J.A., Yam, M.F., Sriramaneni, R.N., Sadikun, A., Ismail, Z., Shah, A.M. and Asmawi, M.Z. 2010. Cardiovascular activity of the n-butanol fraction of the methanol extract of *Loranthus ferrugineus* Roxb. Brazilian Journal of Medical and Biological Research 43(2): 186-194. (The cardiovascular effects of *L. ferrugineus* (= *Scurrula ferruginea*) are most likely attributable to its terpenoid content.)

Amon, A.D.E., Soro, D., N'Guessan, K. and Traoré, D. 2010. (Loranthaceae: vascular parasitic plants of trees and shrubs in south-east Côte d'Ivoire.) (in French) Journal of Applied Biosciences 25: 1565-1572. (Species identified were *Tapinanthus bangwensis*, *T. belvisii* and *Phragmenthera capitata*, infesting 80 host species in 31 families.*T. belvisii* was mainly coastal. Most farmers practice cutting off the infested branch.)

Antonova, T.S., Araslanova, N.M., Guchetl, S.Z., Tchelustnikova, T.A., Ramazanova, S.A. and Trembak, E.N. 2009. Virulence of sunflower broomrape (*Orobanche cumana* Wallr.) in some regions of Northern Caucasus. Helia 32(51): 101-110. (Describing new problems from *O. cumana* in N. Caucasus. Race F predominates but there is much heterogeneity in the populations.)

Aremu, O.T., Osayimwen, F.E. and Emelue, G.U. 2009. Estimate of biodiversity indices of macro flora and fauna resources of Gele-gele forest reserve, Edo State, Nigeria. Research Journal of Agriculture and Biological Sciences 5(5): 660-667. (Including reference to *Strombosia gr*and*ifolia* (Olacaceae).)

Babaei, S., Alizadeh, H., Jahansuz, M.R., Mashahadi, H.R. and Moeini, M.M. 2010. Evaluations of some trap crop efficiencies to broomrape (*Orobanche aegyptiaca*) damage reduction in tomato (*Lycopersicon esculentum*). Proceedings of 3rd Iranian Weed Science Congress, Volume 2: Key papers, weed management and herbicides, Babolsar, Iran, 17-18 February 2010: 98-100. (In a pot experiment, sesamum gave best trap-crop effect followed by cowpea and mung bean.)

Badu-Apraku, B., Ewool, M. and Yallou, C.G. 2010. Registration of *Striga*-resistant tropical extra-early maize population. Journal of Plant Registrations 4(1): 60-66. (A range of cultivars derived from TZEE-W Pop STR C_4 have shown useful resistance to *S. hermonthica* and increased yield in Nigeria and Benin.)

Badu-Apraku, B. and Lum, A.F. 2010. The pattern of grain yield response of normal and quality protein maize cultivars in stress and nonstress environments. Agronomy Journal 102(2): 381-394. (TZEE-W Pop STR QPM C_0 and EV DT-W 99 STR QPM C0 proved high-yielding and stable when infested by *Striga hermonthica*.)

Bandaranayake, P.C.G., Filappova, T., Tomilov, A., Tomilova, N.B., Jamison-McClung, D., Ngo, Q., Inoue, K. and Yoder, J.I..2010. A single-electron reducing quinone oxidoreductase is necessary to induce haustorium development in the root parasitic plant *Triphysaria*. Plant Cell (22) 1404-1419. (This substantial paper provides a large leap forward in understanding the mechanisms that mediate haustorium formation. The enzymes characterized regulate the production of phenolic-derived reactive oxygen species involved in haustorium signaling.)

Barbu, C. 2009. Impact of mistletoe attack (*Viscum album* ssp. *abietis*) on the radial growth of silver fir. A case study in the North of Eastern Carpathians. Annals of Forest Research 52: 89-96. (Recording significant reductions in growth of *Abies alba* from *V. album* ssp. *abietis* over a period of many years in Romania.)

Barcelona, J.F., Co, L.L., Balete, D.S. and Bartolome, N.A. 2009. *Rafflesia aurantia* (Rafflesiaceae): a new species from northern Luzon, Philippines. Gardens' Bulletin (Singapore) 61(1): 17-27. (This new species, related to *R. tengku-adlinii* is considered to be highly threatened by the disappearing dipterocarp forest. See also article in text above.)

Barghouthi, S. and Salman, M. 2010. Bacterial inhibition of *Orobanche aegyptiaca* and *Orobanche cernua* radical elongation. Biocontrol Science and Technology 20(3/4): 423-435. (The most promising bacterial isolates included *Pseudomonas aeruginosa*, *P. fluorescens*, *Bacillus atrophaeus*, and *B. subtilis*.)

Barkalov, V.Yu., Yakubov, V.V. and Taran, A.A. 2009. Floristic records in Sakhalin and the Kuril Islands. Botanicheskiĭ Zhurnal 94(11): 1715-1725. (Newly recorded species include *Orobanche coerulescens*.)

Barnoaiea, I. and Iacobescu, O. 2009. Using pixel and object based IKONOS image analysis for studying decay in silver fir stands. Annals of Forest Research 52: 151-162. (Exploring the potential for satellite imagery to survey *Abies alba* for damage from mistletoe (presumably *V. album*) and other problems. Results not convincing?)

Barrett, C.F., Freudenstein, J V., Taylor, D.L. and Kõljalg, U. 2010. Rangewide analysis of fungal associations in the fully mycoheterotrophic *Corallorhiza striata* complex (Orchidaceae) reveals extreme specificity on ectomycorrhizal *Tomentella* (Thelephoraceae) across North America. American Journal of Botany 97(4): 628-643.

Batianoff, G.N., Naylor, G.C., Olds, J.A., Fechner, N.A. and Neldner, V.J. 2010. Climate and vegetation changes at Coringa-Herald National Nature Reserve, Coral Sea Islands, Australia. Pacific Science 64(1): 73-92. (Increasing duration of droughts and increased temperatures, together with damage from exotic insect pests, appear to be mainly responsible for loss of forest species, including *Ximenia americana* (Olacaceae).)

Benamar, H., Rached, W., Derdour, A. and Marouf, A. 2010. Screening of Algerian medicinal plants for acetylcholinesterase inhibitory activity. Journal of Biological Sciences 10(1): 1-9. (*Osyris quadripartita* shown to be high in total phenolics.)

Blicharska, E., Komsta,Ł., Kocjan, R., Gumieniczek, A., Robak, A. and Versita, 2010. A preliminary study on the effect of mineralization parameters on determination of metals in *Viscum album* species. Central European Journal of Chemistry 8(2): 264-268. (Showing that measure of minerals may vary according to extraction procedures.)

Bolin, J.F., Maass, E. and Musselman, L.J. 2009. Pollination biology of *Hydnora africana* Thunb. (Hydnoraceae) in Namibia: brood site mimicry with insect imprisonment. International Journal of Plant Sciences 170(2): 157-163. (A detailed study confirming the hide beetle *Dermestes maculatus* as the commonest insect visitor, which may be trapped in the flower for 3 days before escaping, carrying viable pollen.)

Bolin, J.F., Maass, E., Tennakoon, K.U. and Musselman, L.J. 2009. Host-specific germination of the root holoparasite *Hydnora triceps* (Hydnoraceae). Botany 87(12) 1250-1254. (Confirming that *H. triceps* germinates in response to exudates from its exclusive host, *Euphorbia dregeana* but not from other *Euphorbia* spp. Fruits are eaten and seeds distributed by the elephant shrew (*Macroscelides proboscideus*) and the striped mouse (*Rhabdomys pumilio*).)

Bougoure, J.J., Brundrett, M.C. and Grierson, P.F. 2010. Carbon and nitrogen supply to the underground orchid, *Rhizanthella gardneri*. New Phytologist 186(4): 947-956. (Confirming that *R. gardneri*, associated always with *Melaleuca* spp., is mycoheterotrophic and acquires nutrients via fungus connections from the ectomycorrhizal shrub *M. scalena* and directly from the soil via the same fungus

Bowen, M.E., McAlpine, C.A., Seabrook, L.M., House, A.P.N. and Smith, G.C. 2009. The age and amount of regrowth forest in fragmented brigalow landscapes are both important for woodland dependent birds. Biological Conservation 142(12): 3051-3059. (Mistletoes (unspecified) cited as an important factor in bird populations.)

Brand, J.E. 2009. Effect of different *Acacia acuminata* variants as hosts on performance of sandalwood (*Santalum spicatum*) in the northern and eastern Wheatbelt, Western Australia. Australian Forestry 72(4): 149-156. (*S. spicatum* developed better on *A. acuminata* narrow-phyllode variant and *A. acuminata* small-seed variant than on the typical form or on *A. burkittii* or *A. oldfieldii*.)

Breteler, F.J. 2007. A reconsideration of the species delimitation in *Diogoa* (afrotropical Olacaceae). Systematics and Geography of Plants 77(2): 239-245. (*Strombosia retivenia* previously treated in Nigeria as synonymous with *Diogoa zenkeri* is newly described and illustrated as a separate species, *D. retivenia*.)

Brophy, J.J., Goldsack, R.J. and Forster, P.I. 2009. The essential oils of some Australian *Cassytha* species (Lauraceae). Journal of Essential Oil Research 21(6): 543-546. (Describing the main essential oils in *C. filiformis*, *C. pubescens* and *C. capillaris.*)

Brown, R.H., Nickrent, D.L. and Gasser, C.S. 2010. Expression of ovule and integument-associated genes in reduced ovules of Santalales. Evolution and Development 12(2) 231-240. (Plant morphologists have long been fascinated with embryo sac reduction in parasitic plants. This is one of the first papers to elicit information on the genetic basis of this phenomenon and should stimulate similar studies in other groups of parasites.)

Bülbül, F., Aksoy, E., Uygur, S. and Uygur, N. 2009. Broomrape (*Orobanche* spp.) problem in the eastern Mediterranean region of Turkey. Helia 32(51): 141-152. (Reporting that in this region, *O. aegyptlaca/O. ramosa* were present in 28% of the tomato greenhouses and 80% of tomato fields, *O. crenata* and *O. aegyptiaca/O. ramosa* were present in 58% of faba bean and 75% of lentil fields. *O. cumana* does not affect sunflower in this region but does occur elsewhere in the country.)

Cai RunLan, Yang MeiHua, Shi Yue, Chen Jun, Li YongChao and Qi Yun. 2010. Antifatigue activity of phenylethanoid-rich extract from *Cistanche deserticola*. Phytotherapy Research 24(2): 313-315. (Confirming alleviation of fatigue in mice, supporting traditional use.)

Chiari, M.E., Joray, M.B., Ruiz, G., Palacios, S.M. and Carpinella, M.C. 2010. Tyrosinase inhibitory activity of native plants from central Argentina: isolation of an active principle from *Lithrea molleoides*. Food Chemistry 120(1): 10-14. (*L. molleoides* (Santalaceae) especially high in anti-tyrosinase activity, of value in the food industry.)

Chivandi, E., Davidson, B.C. and Erlwanger, K.H. 2008. A comparison of the lipid and fatty acid profiles from the kernels of the fruit (nuts) of *Ximenia caffra* and *Ricinodendron rautanenii* from Zimbabwe. Industrial Crops and Products 271 29-32 . (Concluding that *X. caffra* is potentially an important source of essential fatty acids.)

Christov, M., Batchvarova, R. and Hristova-Cherbadzhi, M. 2009. Wild species of *Helianthus* L. - sources of resistance to the parasite *Orobanche cumana* Wallr. Helia 32(51): 65-74. (Describing the use *O. cumana*-resistance from 11 wild species of *Helianthus* in sunflower breeding in Bulgaria.)

Chu HongBiao, Tan NingHua and Peng CaiSheng. 2009. Progress in research on *Pedicularis* plants. China Journal of Chinese Materia Medica 34(19): 2536-2546. (Reviewing chemical constituents and pharmacological potential among the 300 species of *Pedicularis* in China.)

Codrea, N. 2008. (Crop potential of some sunflower hybrids at Cogealac Varieties Testing Center during 2002-2004.) (in Romanian) Lucrări Ştiinţifice - Universitatea de Ştiinţe Agronomice Bucureşti. Seria A, Agronomie 51: 617-623. (Among 4 hybrids tested, Select was susceptible to *Orobanche cumana* while Favorit, Jupiter and Neptun were apparently immune.)

Coe, F.G., Parikh, D.M. and Johnson, C.A. 2010. Alkaloid presence and brine shrimp (*Artemia salina*) bioassay of medicinal species of eastern Nicaragua. Pharmaceutical Biology 48(4): 439-445. (*Struthanthus cassythoides* was one of the 2 most toxic of 30 medicinal species tested.)

Costa, R.M.P.B., Vaz, A.P.M., Oliva, M.L.V., Coelho, L.C.B.B., Correia, M.T.S. and Carneiro-da-Cunha, M.G. 2010. A new mistletoe *Phthirusa pyrifolia* leaf lectin with antimicrobial properties. Process Biochemistry, 45(4): 526-533. (Extracts of *P. pyrifolia* show toxicity to a range of bacteria and fungi.)

Costea, M., García Ruiz, I. and Welsh, M. 2008. A new species of *Cuscuta* (Convolvulaceae) from Michoacán, Mexico. Brittonia 60(3): 235-239. (*C. cotijana* is described from NW Mexico, related to *C. jalapensis* and occurring on a wide range of hosts including maize and avocado.)

Cullen, J. 2009. *Phelypaea boissieri*: Orobanchaceae. Curtis's Botanical Magazine 26(4): 379-388. (*P. boissieri* is described and illustrated. The history of the genus is described and a key to the species is provided; also instructions for its cultivation.)

de Oliveira, V.M.A., Carneiro, A.L.B., Cauper, G.S.de B. and Pohlit, A.M. 2009. In vitro screening of Amazonian plants for hemolytic activity and inhibition of platelet aggregation in human blood. Acta Amazonica 39(4): 973-980. (*Chaunochiton kappleri* (Olacaceae) among species NOT showing haemolytic activity.)

Dedic´, B., Lačok, N., Tančic´, S.,Dušanic´, N. and Jocic´, S. 2009. Current status of broomrape (*Orobanche cumana* Wallr.) in Serbia. Helia 32(51): 135-140. (Reviewing the distribution of *O. cumana* races B and E in Serbia and noting the successful use of hybrids resistant to race E.)

Demirci, M. and Kaya, Y. 2009. Status of *Orobanche cernua* Loefl. and weeds in sunflower production in Turkey. Helia 32(51): 153-160. (Reporting extensive occurrence of *O. cumana* in sunflower in Turkey but successful use of a single application of imazamox plus imazapyr for its control in imidazolinone-resistant varieties.)

Díaz-Ruiz, R., Torres, A.M., Satovic, Z., Gutierrez, M.V., Cubero, J.I. and Román, B. 2010. Validation of QTLs for *Orobanche crenata* resistance in faba bean (*Vicia faba* L.) across environments and generations. TAG Theoretical and Applied Genetics 120(5): 909-919. (Two QTLs contribute to *O. crenata* resistance in all three locations tested, with other QTLs associated with resistance in only one or two of the locations.)

Dicu, G., Dumitrescu, N., Radu, M., State, D., Fuia, S. and Diaconescu, O. 2009. Improving sunflower for resistance to *Orobanche* and tribenuron methyl herbicides - sunflower hybrid PF100. Helia 32(51): 119-126. (Describing hybrid PF100, having resistance to *O. cumana* and to sulfonylurea herbicides.)

Didier, D.S., Laurier, E.O.N., Din, N., Jules, P.R., Victor, T., Henri, F., Georges, S., Didier, M.A., Joseph, B.I. and Akoa, A. 2009. An assessment on the uses of Loranthaceae in ethno pharmacology in Cameroon: a case study made in Logbessou, North of Douala. Journal of Medicinal Plants Research 3(8): 592-595. (In a survey of 150 traditional healers, 82% recommended *Phragmanthera capitata* for a range of at least 22 diaseases.)

Domínguez, L.S., Melville, L., Sérsic, A., Faccio, A. and Peterson, R.L. 2009. The mycoheterotroph *Arachnitis uniflora* has a unique association with arbuscular mycorrhizal fungi. Botany 87(12): 1198-1208. (Showing that the *Glomus* fungus associated with *A. uniflora* (Corsiaceae) has a unique intra-cellular structure in the root cortex.)

Dominighini, A., Ferrero, M., Crosetti, D., Alvarez, M. de L., Ronco, M.T., Gonzálvez, J., Wagner, M., Gurni, A., Carnovale, C. and Luquita, A. 2010. Effect of *Ligaria cuneifolia* catechin- and quercetin-enriched fractions on hemorheology and plasma cholesterol. Clinical Hemorheology and Microcirculation 44(3): 217-225.

Dong ShuQi, Ma YongQing, Shui JunFeng and Sun YaJun. 2009. Germination of *Orobanche minor* seeds as induced by rhizosphere soil extracts from winter wheat of different historical periods. Journal of China Agricultural University 14(2): 59-63. (Referring to 'allelopathic' effects of wheat stimulating germination of *O. minor.* But abstract also refers to inhibition. Not clear.)

Dor, E., Alperin, B., Wininger, S., Ben-Dor, B., Somvanshi, V.S., Koltai, H., Kapulnik, Y. and Hershenhorn, J. 2010. Characterization of a novel tomato mutant resistant to the weedy parasites *Orobanche* and *Phelipanche* spp. Euphytica 171(3): 371-380. (*Sl-ORT1,* a mutant of tomato M-82. produced by fast-neutron mutagenesis showed resistance to *Phelipanche aegyptiaca*, *P. ramosa*, *Orobanche cernua* and *O. crenata*, associated with a single recessive gene, of potential value for further breeding work.)

Dor, E., Hershenhorn, J., Andolfi, A., Cimmino, A. and Evidente, A. 2009. *Fusarium verticillioides* as a new pathogen of the parasitic weed *Orobanche* spp. Phytoparasitica 37(4): 361-370. (*F. verticilloides*, isolated from *O. cumana* was highly pathogenic to *O. aegyptiaca*, *O. ramosa* and *O. cumana* but did not affect *O. crenata*. A toxic metabolite was isolated and identified as fusaric acid.)

Ducarme, V. and Wesselingh, R.A. 2010. Performance of two *Rhinanthus* species under different hydric conditions. Plant Ecology 206(2): 263-277. (Confirming that *Rhinanthus angustifolius* performs better than *R. minor* in all moisture conditions but especially when wet.)

Duncan, G. 2009. *Harveya purpurea*: Orobanchaceae. Curtis's Botanical Magazine 26(4): 398-407. (The endemic South African root parasite *Harveya purpurea* ssp. *purpurea* is illustrated and described, and its history, taxonomy, life cycle, host plants and distribution are given.)

Durdun, N.C., Papuc, C.P., Crivineanu, M. and Nicorescu, V. 2009. The effect of polyphenols from some plants alcoholic extracts on lipid peroxidation and nonenzymatic haemoglobin glycosylation. Series C, Veterinary Medicine 55: 299-306. (Including evaluation of *Viscum album* extracts.)

Dzomeku, I.K., Abudulai, M., Brandenburg, R.L. and Jordan, D.L. 2009. Survey of weeds and management practices in peanut (*Arachis hypogaea* L.) in the savanna ecology of Ghana. Peanut Science 36(2): 165-173. (*Striga hermonthica* listed as a weed of groundnut but only occurring on weedy grasses?)

Ebrahimi, E. and Eslami, S.V. 2010. Seed germination and seedling emergence of dodder (*Cuscuta monogyna* L.). Proceedings of 3rd Iranian Weed Science Congress, Volume 1: Weed biology and ecophysiology, Babolsar, Iran, 17-18 February 2010: 52-55. (*C. monogyna* recorded as a parasite of grapes, pomegranate, elm and citrus fruits in Iran. Germination required scarification.)

Egger, J.M. 2009. A new species of *Castilleja* (Orobanchaceae) from Trujillo, Venezuela. Brittonia 6191): 41-45. (Describing *C. exigua* from a single location.)

Encheva, J., Shindrova, P. and Penchev, E. 2008. Developing mutant sunflower lines (*Helianthus annuus* L.) through induced mutagenesis. Helia 31(48): 61-72. (Sunflower mutants generated by ultrasound included a number with high resistance to *Orobanche cumana*.)

Ephrath, J.E. and Eizenberg, H. 2010. Quantification of the dynamics of *Orobanche cumana* and *Phelipanche aegyptiaca* parasitism in confectionery sunflower. Weed Research (Oxford) 50(2): 140-152. (Finding the development of *O. cumana* and *P. aegyptiaca* to be similarly, closely, related to thermal time.)

Ertürk, Ö. 2010. Antibacterial and antifungal effects of alcoholic extracts of 41 medicinal plants growing in Turkey. Czech Journal of Food Sciences 28(1): 53-60. (*Viscum album* among the most active species tested.)

Fadini, R.F., Gonçalves, D.C.M. and Reis, R.P.F. 2009. Consistency in seed-deposition patterns and the distribution of mistletoes among its host trees in an Amazonian savanna. Australian Journal of Botany 57(8): 640-646. (Dispersal of seeds of *Psittacanthus plagiophyllus* by the bird *Elaenia cristata* was predominantly onto larger and previously infected cashew (*Anacardium occidentale*).)

Falconieri, D., Marongiu, B., Piras, A., Porcedda, S., Tuveri, E. and Marzouki, H. 2010. In: Neffati, M., Belgacem, A.O. and El-Mourid, M. (Eds) Supercritical extraction of essential oils from natural matrices. Acta Horticulturae 853: 229-240. (Discussing the optimum procedures for extraction of oils from a wide range of materials including wood of *Santalum album*.)

Fallahpour, F., Koocheki, A., Mahalati, M.N. and Rastegar, M.F. 2010. Tolerance of sugarbeet varieties to dodder (*Cuscuta campestris*). Proceedings of 3rd Iranian Weed Science Congress, Volume 1: Weed biology and ecophysiology, Babolsar, Iran, 17-18 February 2010: 137-142. (Among 5 commercial varieties, Flores was the most tolerant and Castille the most susceptible.)

Fay, M.F. 2009. *Lathraea clandestina*: Orobanchaceae. Curtis's Botanical Magazine 26(4): 389-397. (Describing *L. clandestina* (Orobancheaceae) as a 'challenging' garden plant and including aspects of its biology.)

Fay, M.F., Bennett, J.R., Dixon, K.W. and Christenhusz, M.J.M. 2009. Parasites, their relationships and the disintegration of Scrophulariaceae *sensu lato*. Curtis's Botanical Magazine 26(4): 286-313. (A specialist reviewer has commented on this paper and expressed serious misgivings on its reliability. For a detailed critique see http://www.parasiticplants.siu.edu/Documents/ReviewFay2010.pdf.)

Fernández-Aparicio, M. and Rubiales, D. 2010. Characterisation of resistance to crenate broomrape (*Orobanche crenata* Forsk.) in *Lathyrus cicera* L. Euphytica 173(1): 77-84. (Accessions of *L. cicera* showed a wide variety of resistance and avoidance mechanisms.)

Fernández-Aparicio, M., García-Garrido, J.M., Ocampo, J.A. and Rubiales, D. 2010. Colonisation of field pea roots by arbuscular mycorrhizal fungi reduces *Orobanche* and *Phelipanche* species seed germination. Weed Research (Oxford) 50(3) 262-268. (Infection of pea roots by *Glomus mosseae* or *G. intraradices* caused a moderate reduction in the activity of root exudates on germination of *O. crenata, O. foetida* and *P. aegyptiaca* but not on *O. minor*.)

Fernández-Aparicio, M., Rispail, N., Prats, E., Morandi, D., García-Garrido, J.M., Dumas-Gaudot, E., Duc, G. and Rubiales, D. 2010. Parasitic plant infection is partially controlled through symbiotic pathways. Weed Research (Oxford) 50(1): 76-82. (*Medicago trunculata* and pea lines with mutations in symbiosis-related genes also show increased susceptibility to parasitism by *O. crenata*.)

Fernández-Escobar, J., Rodríguez-Ojeda, M.I., Fernández-Martínez, J.M. and Alonso, L.C. 2009. Sunflower broomrape (*Orobanche cumana* Wallr.) in Castilla-León, a traditionally non-broomrape infested area in northern Spain. Helia 32(51): 57-64. (This province has previously been free of *O. cumana* but has become infected in recent years by race F.)

Fernández-Martínez, J.M., Domínguez, J., Pérez-Vich, B. and Velasco, L. 2009. Current research strategies for sunflower broomrape control in Spain. Helia 32(51): 47-56. (Describing an integrated approach to control of *O. cumana* in sunflower by combining vertical and horizontal resistance, use of herbicide on imidazolinone-resistant varieties and detailed monitoring of race development in the weed.)

Fondevilla, S., Fernández-Aparicio, M., Satovic, Z., Emeran, A.A., Torres, A.M., Moreno, M.T. and Rubiales, D. 2010. Identification of quantitative trait loci for specific mechanisms of resistance to *Orobanche crenata* Forsk. in pea (*Pisum sativum* L.). Molecular Breeding 25(2) 259-272. (Four QTLs were each found to explain from 10 to 17% of the variation in field resistance to parasitism. QTLs involved in specific mechanisms of resistance, such as low induction of parasite seed germination, reduced tubercle establishment, and slower tubercle development were also identified.)

Friedman, C.M.R., Ross, B.N. and Martens, G.D. 2010. Antibodies raised against tobacco aquaporins of the PIP2 class label viscin tissue of the explosive dwarf mistletoe fruit. Plant Biology 12(1): 229-233. (Throwing light on the processes involved prior to the explosive release of seeds by *Arceuthobium americanum*.)

Friedman, C.M.R. and Sumner, M.J. 2009. Maturation of the embryo, endosperm, and fruit of the dwarf mistletoe *Arceuthobium americanum* (Viscaceae). International Journal of Plant Sciences 70(3): 290-300. (A very detailed study.)

Gal-On, A., Naglis, A., Leibman, D., Ziadna, H., Kathiravan, K., Papayiannis, L., Holdengreber, V., Guenoune-Gelbert, D., Lapidot, M. and Aly, R. 2009. Broomrape can acquire viruses from its hosts. Phytopathology 99(11): 1321-1329. (Showing that cucumber mosaic virus could be transmitted from tomato to *Phelipanche aegyptiaca* and could replicate in the latter. Tomato mosaic virus, potato virus Y, and tomato yellow leaf curl virus were also transmitted but there was less clear evidence of replication.)

German, D.A., Dyachenko, S.A., Kosachev, P.A., Smirnov, S.V. and Shmakov, A.I. 2009. Supplements to the flora of the West Mongolia. Botanicheskiĭ Zhurnal 94(10: 1583-1593. (Newly recorded species include *Euphrasia altaica*.)

Ghrabi-Gammar, Z., Jilani, I.B.H., Daoud-Bouattour, A. and Saad-Limam, S.B. 2010. In: Neffati, M., Belgacem, A.O. and El-Mourid, M. (Eds) Ethnobotanical tradition in Allagua in the Ghomrassen region. Acta Horticulturae 853: 447-454. (*Santalum album* among plant materials traditionally offered by the bridegroom to the bride at weddings in S. Tunisia.)

Gibot-Leclerc, S., Charles, J. and Dessaint, F. 2009. (Potential host plant susceptibility to two *Orobanche ramosa* L. races.) (in French) In: Proceedingas XIIIème Colloque International sur la Biologie des Mauvaises Herbes, Dijon, France, 8-10 Septembre 2009: 446-456. (Describing differences between populations of *O. ramosa* from tobacco and from rape, in their germination in response to root exudates of a range of potential hosts, especially within the Brassicaceae.)

Gohil, T.G. and Thakor, A.B. 2009. A climber host of *Dendrophthoe falcata* (L.f.) Etting var. *falcata*. International Journal of Plant Sciences (Muzaffarnagar) 4(2): 651. (First report of *D. falcata* on *Cryptolepis buchanani* in Gujarat, India.)

Gontcharov, S.V. 2009. Sunflower breeding for resistance to the new broomrape race in the Krasnodar Region of Russia. Helia 32(51): 75-80. (Line VK 623 has been used in the development of varieties resistant to *O. cumana* races E and F but the recessive nature is a drawback.)

Goussous, S.J., Hameed, K.M. and Saadoun, I. 2009. Isolation and evaluation of indigenous fungal and bacterial isolates as potential bioagents against broomrape (*Orobanche cernua*) in Jordan. Plant Pathology Journal (Faisalabad) 8(3): 98-105. (Identifying a range of pathogens from *O. cernua* including a *Cylindrocladium* sp., *Fusarium oxysporum* and *F. solani*; also a *Streptomyces* sp.)

Govaerts, R. and Nickrent, D.L. 2009. *Cytinus ruber*: Cytinaceae. Curtis's Botanical Magazine 26(4): 314-321. (*C. ruber*, a parasite of *Cistus creticus*, is described and illustrated, together with information on its phylogeny, systematics, distribution, habitat, ecology, phenology and cultivation.)

Gregory, S.C., van der Haegen, W.M., Chang, W.Y. and West, S.D. 2010. Nest site selection by western gray squirrels at their northern range terminus. Journal of Wildlife Management 74(1): 18-25. (Presence of *Arceuthobium* (unspecified) in ponderosa pine increased the chances of nesting by the squirrel *Sciurus griseus*.)

Gressel, J. 2009. Biotech and gender issues in the developing world. Nature Biotechnology 27(12): 1085-1086. (Emphasising the role of new technology, especially that leading to *Striga*-resistant varieties, in alleviating the burden on women in third-world farming.)

Gressel, J. and Valverde, B.E. 2009. The other, ignored HIV - highly invasive vegetation. Food Security 1(4): 63-478. (Emphasising the enormous importance of weeds (‘Highly Invasive Vegetation’) in third world agriculture, and including an analysis of the *Striga* problem, and the potential for new technological, especially transgenic, solutions along with existing approaches.)

Guntveit, S. and Moe, D. 2010. *Parentucellia viscosa* as a casual species (1990-1993) at three sites in Ygarden municipality, Hordaland, westernmost Norway. Blyttia 68(1): 9-11. (The only records for this species in Norway.)

Hamre, H.J., Kiene, H. and Kienle, G.S. 2009. Clinical research in anthroposophic medicine. Alternative Therapies in Health and Medicine 15(6): 52-55. (A general review, including reference to mistletoe, presumably mainly *Viscum album*.)

Han JianPing,Song, JingYuan, Liu Chang, Chen Jun, Qian Jun, Zhu YingJie, Shi LinChun, Yao Hui and Chen ShiLin. 2010. Identification of *Cistanche deserticola* and *Cistanche tubulosa* species (Orobanchaceae) based on sequences of the plastid psbA-trnH intergenic region. Acta Pharmaceutica Sinica 45(1): 126-130. (Suggesting that the *psb*A-*trn*H intergenic spacer region represents a barcode that can be used to distinguish *C. deserticola* and *Cistanche tubulosa*, the preferred medicinal species, from *C. sinensis, C. salsa*, *Orobanche pycnostachya* and *Boschniakia rossica*.)

Hassan, E.A. and El-Awadi, M.E. 2009. Study on the trichomes of the parasitic weed broomrape: morphology and histochemistry. General and Applied Plant Physiology 35(1/2): 13-21. (Describing various trichome structures on *Orobanche aegyptiaca* and *O. crenata*.)

Hassan, M.M., Abdel Gain, M.E. and Babiker, A.G.T. 2009. Potential of bacterial strains and nitrogen in reduction of *Striga hermonthica* (Del.) Benth. infesting sorghum. Advances in Environmental Biology 3(1): 1-9. (Combinations of nitrogen and a range of bacterial innocula including *Pseudomonas putida* and *Azospirillum brasilense* significantly recuced *S. hermonthica* in bag experiments.)

Hladni, N., Jocic´, S., Miklič, V., Saftic´-Pankovic´, D. and Škoric´, D. 2009. Using new Rf inbred lines originating from an interspecific population with *H. deserticola* for development of sunflower hybrids resistant to broomrape. Helia 32(51): 81-90. (Hybrids derived from inbreds RHA-D-2, RHA-D-5, RHA-D-6, RHA-D-7 and RHA-D-8, which had been developed from *H. deserticola*, showed resistance to *Orobanche cumana* races E and F.)

Ho ShangTse, Tung YuTangm, Cheng KaiChung and Wu JyhHorng. 2010. Screening, determination and quantification of major antioxidants from *Balanophora laxiflora* flowers. Food Chemistry 122(3): 584-588. (Identifying several components of flower extracts from *B. laxiflora* with excellent antioxidant activities.)

Hopper, S.D. 2009. *Nuytsia floribunda*: Loranthaceae. Curtis's Botanical Magazine 26(4): 333-368. (*N. floribunda* is described and illustrated, its mythological and practical use by Australian aborigines, its phylogeny, biology, ecology and systematics are described; also its possible cultivation and propagation.)

Hosoya, T., Nakata, A., Zaima, K., Jalifah Latip, Laily Din, Noramly Muslim and Morita, H. 2010. Papuabalanols A and B, new tannins from *Balanophora papuana*. Chemical and Pharmaceutical Bulletin 58(5): 738-741. (Both compounds showed potential pharmaceutical uses.)

Huskins, S.D. and Shaw, J. 2010. The vascular flora of the North Chickamauga Creek Gorge State Natural Area, Tennessee. Castanea 75(1): 101-125. (Including reference to *Nestronia umbellula* (Santalaceae).)

Hynson, N.A. and Bruns, T.D. 2009. Evidence of a myco-heterotroph in the plant family Ericaceae that lacks mycorrhizal specificity. Proceedings of the Royal Society, Series B, Biological Sciences 276: 4053-4059. (Showing that *Pyrola aphylla* associates with a similar range of ecto-mycorrhizal fungi as its closest green relative, *P. picta*.)

Ibikunle, O.A., Menkir, A., Kling, J.G. and Smith, M.A.K. 2009. Evaluating intra row spacing to optimize techniques for artificial infestation of *Striga hermonthica* (Del.) Benth, screening for resistance in maize. Maydica 54(1): 47-53. (Suggesting intra-row spacing of 20-25 cm for optimum *Striga* emergence in screening trials.)

*Ibrahim, H.I. and Omotesho, O.A. 2010. Economic analysis of alternative *Striga hermonthica* control methods in the Northern guinea Savanna of Nigeria. Electronic Journal of Environmental, Agricultural and Food Chemistry 9(1): 138-144. (http://ejeafche.uvigo.es/index.php?option=com_docmanandtask=doc_downloadandgid=587andItemid=33) (Over a two-season period, best economic return was obtained from successive crops of *Striga*-tolerant maize variety Acr 97 TZL COMP.1-W, compared with local varieties with or without extra N fertilizer.)

Ibrahim, H.I., Omotesho, O.A. and Adewunmi, M.O. 2010. Effect of five *Striga hermonthica* control methods on input use, striga counts and maize yield in the Northern guinea Savanna of Nigeria. Electronic Journal of Environmental, Agricultural and Food Chemistry 9(1): 145-149. (http://ejeafche.uvigo.es/index.php?option=com_docm) (See previous entry – confirming higher maize yield and lower *Striga* counts with the *Striga* tolerant maize variety.)

Ilic´, N. 2009. (Decline of sessile oak [*Quercus petraea* (Mattuschka) Lieblein] and occurrence of the mistletoe *Loranthus europaeus* Jacq. on mountain Motajica.) (in Serbo-Croatian) Radovi Šumarskog Fakulteta Univerziteta u Sarajevu 39(1): 21-33. (Attributing the decline in oak forest at least partly, if not mainly, to *L. europaeus*, which infests up to 80% of older trees in the study area.)

Jadhav, R.B., Bhatnagar, S.P. and Surana, S.J. 2010. Diuretic activity of squamate mistletoe, *Viscum angulatum*. Pharmaceutical Biology 48(4): 417-421. (Observing a dose-dependent potassium-sparing diuretic effect, not previously reported for *V. angulatum*.)

Jahedi, A. and Nezamabadi, N. 2010. Chemical management of broomrape (*Orobanche aegyptiaca*) in potato. Proceedings of 3rd Iranian Weed Science Congress, Volume 2: Key papers, weed management and herbicides, Babolsar, Iran, 17-18 February 2010: 115-118. (Best results obtained with rimsulfuron 90 g/ha 30, 40 and 50 days after planting.)

Javid Hussain, Khan, A.L., Najeeb-ur-Rehman, Muhammad Hamayun, Shinwari, Z.K., Wasi Ullah and Lee InJung 2009. Assessment of herbal products and their composite medicinal plants through proximate and micronutrients analysis. Journal of Medicinal Plants Research 3(12): 1072-1077. (Including analysis of metal content of *Cucuta reflexa*.)

Jinga, V., Iliescu, H., Stefan, S. and Manole, D. 2009. Response of some sunflower cultivars to broomrape attack in Romania. Helia 32(51): 127-134. (Hybrids HS 1900, Turbo, Justin and Favorit showed absolute resistance to *O. cumana*. Good control was also achieved with herbicides trifuralin and imazamethabenz.)

Johnsen, F.H., Mwaseba, D.L. and Mombo, F.M. 2009. Farmer perspectives on the usefulness of technologies introduced by on-farm research: the case of the TARP II - SUA programme. Noragric Report, 50pp. (Including reference to a *Striga* project in Tanzania but no detail in abstract.)

Joita, M.P., Raranciuc, S., Sava, E., Stanciu, D. and Nastase, D. 2009. Virulence and aggressiveness of sunflower broomrape (*Orobanche cumana* Wallr.) populations in Romania. Helia 32(51): 111-118. (Describing the development of a highly virulent race of *O. cumana* in Romania since 2006, attacking most previously grown varieties. Some new resistant varieties are now being developed.)

Jones, C.G., Plummer, J.A., Barbour, E.L. and Byrne, M. 2009. Genetic diversity of an Australian *Santalum album* collection - implications for tree improvement potential. Silvae Genetica 58(5/6): 279-286. (A study of genetic diversity in *S. album, S. macgregorii* and *S. austrocaledonicum*, incidentally supporting the origin of *S. album* in Timor, with subsequent transfer to India.)

Kanat, M., Alma, M.H. and Si̇vri̇kaya, F. 2010. The effect of *Viscum album* L. on annual diameter increment of *Pinus nigra* Arn. African Journal of Agricultural Research 5(2): 166-171. (In Turkey, the annual diameter increments of *Pinus nigra* were reduced by about 41% within 9 years due to infestation by *Viscum album* ssp. *austriacum*.)

Karlík, P. and Poschlod, P. 2009. History or abiotic filter: which is more important in determining the species composition of calcareous grasslands? Preslia 81(4): 321-340. (The presence of *Rhinanthus alectorolophus* is indicative of previous cultivation.)

Kartoolinejad, D., Hosseini, S.M., Mirnia, S.K., Akbarinia, M. and Shayanmehr, F.2008. Investigation of the relationship between infection intensity to mistletoe (*Viscum album* L.) with some host species features in Nour Forest Park. Iranian Journal of Natural Resources 61(1): 111-122. (Finding that greatest *V. album* intensity was in ironwood (*Ostrya virginiana*) and on the edges of woodland.)

Kaya, Y., Evci̇, G., Pekcan, V., Gucer, T. and Yi̇lmaz, M.I. 2009. Evaluation of broomrape resistance in sunflower hybrids. Helia 32(51): 161-170. (Describing the development of several hundred hybrids and lines of sunflower resistant to *O. cumana* in Turkey.)

Kelly, S.K., Friedman, C.M.R. and Smith, R.G. 2009. Vesicular cells of the lodgepole pine dwarf mistletoe (*Arceuthobium americanum*) fruit: development, cytochemistry, and lipid analysis. Botany 87(12): 1177-1185. (The explosive fruits of *Archeuthobium* species are frequently mentioned in introductory texts though the mechanism has received little study. Using histological methods and chemical analyses, the authors elucidate the origin of the vesicular cells and suggest that their accumulation of lipid functions in the discharge of the seed.)

Kipre, G.R., Guede-Guina, F., Grellier, P. and Djaman, A.J. 2009. (Anti malaria activity of *Olax subscorpioidea* Oliv and *Morinda morindoides* Bak. Milne-Redh two plants of Ivoirian pharmacopeia.) (in French) Médecine d'Afrique Noire 56(11): 580-584. (In Côte d'Ivoire, extracts of *O. subscorpiodea* had inhibitory effects on *Plasmodium falciparum*.)

Koltai, H., LekKala, S.P., Chaitali Bhattacharya, Mayzlish-Gati, E., Resnick, N., Wininger, S., Dor, E., Yoneyama, K., Yoneyama, K., Hershenhorn, J., Joel, D.M. and Kapulnik, Y. 2010. A tomato strigolactone-impaired mutant displays aberrant shoot morphology and plant interactions. Journal of Experimental Botany 61(6): 1739-1749. (Describing a tomato mutant with reduced CCDM enzyme, resulting in reduced strigolactone production, reduced infection by AM fungus *Glomus intraradices*, relative resistance to *Orobanche* and increased branching.)

Kothawade, S.N., Shinde, P.B., Agrawal, M.R., Aragade, P.D. and Kamble, H.V.; 2010. Preliminary evaluation of *Dendropthoe falcata* mucilage as tablet binder. Journal of PharmTech Research 2(2): 1474-1476. (Found to be useful.)

Krishna, A.R. and Valli, P.K.D. 2009. Studies on biological control of *Cuscuta chinensis* Lamk - a parasitic weed by *Euphorbia hirta* L Indian Journal of Weed Science 41(1/2): 101-102. (Showing that '*C. chinensis*' (probably *C. campestris*?) fails to develop normally on *E. hirta* and when the latter is inter-planted with green gram (*Phaseolus aureus*), it also reduces the attack on the crop and increases crop yield.)

Kuijt, J. 2009. Monograph of *Psittacanthus* (Loranthaceae). Systematic Botany Monographs 86: 1-361. (See Review above.)

Kuijt, J. 2009. Miscellaneous mistletoe notes, 48-60: descriptions of twelve new species of Loranthaceae and

Viscaceae. Brittonia 61(2): 144-162. (Describing 12 new species - *Aetanthus trifolius, Cladocolea rostrifolia, Dendrophthora lanceolata, D. rotundata, D. tenuis, D. werffii, Oryctanthus minor, Phoradendron pascoi, P. vasquezianum, Struthanthus apiculatus, S. schultesii,* and *S. sessiliflorus.* Also noting that *Cladocolea alternifolia*, previously thought to be extinct, occurs on Ilha Grande, just west of Rio de Janeiro, Brazil.)

Kumar, A.N.A., Nataraja, K.N., Geeta Joshi and Rathore, T.S. 2009. Variation in photosynthesis, transpiration and instantaneous water use efficiency in the clones of sandalwood (*Santalum album* L.). Indian Journal of Plant Physiology 14(4): 328-335. (Showing variations in photosynthesis, stomatal conductance, intercellular CO_2 concentration and transpiration rate among 37 clones of *S. album* in India.)

Lashkari, A., Meibodi, M.A.B., Moeini, M.M. and Mirhadi, S.M.J. 2010. Survey the possibility chemical and cultural control of tomato weed field with concern on broomrape (*Orobanche aegyptiaca).* Proceedings of 3rd Iranian Weed Science Congress, Volume 2: Key papers, weed management and herbicides, Babolsar, Iran, 17-18 February 2010: 278-281. (Some control with glyphosate, and with sulfosulfuron + metsulfuron but not with sulfosulfuron alone, rimsulfuron, ammonium sulphate or urea.)

Laszczyk, M.N. 2009. Pentacyclic triterpenes of the lupane, oleanane and ursane group as tools in cancer therapy. Planta Medica 75(15): 1549-1560. (Noting that mistletoe (presumably *Viscum album*) could be a source of active triterpenes.)

Lee ChanHo, Kim JoonKi, Kim HyoYeon, Park SungMin and Lee SunMee. 2009. Immunomodulating effects of Korean mistletoe lectin *in vitro* and *in vivo.* International Immunopharmacology 9(13/14): 1555-156. (Results suggest that extracts of *Viscum album* var. *coloratum* enhance the immune system through modulation of lymphocytes, NK cells, and macrophages.)

Leimu, R. 2010. Habitat quality and population size as determinants of performance of two endangered hemiparasites. Annales Botanici Fennici 47(1): 1-13. (Performance of *Melampyrum arvense* was influenced only by habitat quality, while that of *M. cristatum* depended also on population size.)

Lepší, M. and Lepší, P. 2009. (The finds of interesting and new plants in the South Bohemian flora XV.) (in Czech) Sborník Jihočeského Muzea v Českých Budějovicích, Přírodní Vědy 49: 59-75. (Reporting *Orobanche asiatica* in S. Bohemia.)

Lewis, K.C., Alers-García, J. and Wright, L.J. 2010. Green tea catechins applied to susceptible hosts inhibit parasitic plant attachment success. Crop Science 50(1): pp 253-264. (Catechins, known to inhibit pectin methylesterase, reduced parasitism of *Lupinus texensis* by *Castilleja indivisa* and of *Arabidopsis thaliana* by *Cuscuta pentagona* at 5-10 g/l, perhaps corroborating evidence for the inhibition of cell-wall degrading enzymes in resistance to parasitism.)

Li DongXiao, Wang, L.J., Yang XiaoPo, Zhang GuoGuang and Chen LiAng 2010. Proteomic analysis of blue light-induced twining response in *Cuscuta australis*. Plant Molecular Biology 72(1/2): 205-213. (Results suggest the blue light-induced twining in *C. australia* seedlings may be mediated by proteins involved in light signal transduction, cell wall degradation, cell structure, and metabolism.)

Li DongXiao, Zhang HuiHuang, Zhang GuoGuang and Chen Liang. 2009. The effects of different lights and gibberellin on establishment of parasitism between dodder and its hosts. Journal of Tropical and Subtropical Botany 17(5): 458-464. (Demonstrating that that there was not only HER (high energy reaction) in dodders, but also dark conversion from Pfr to Pr, and there were mutual interactions of phytochromes and cryptochromes in twining.)

López-Bellido, R.J., Benítez-Vega, J. and López-Bellido, L. 2009. No-tillage improves broomrape control with glyphosate in faba-bean. Agronomy Journal 101(6): 1394-1399. (Abstract suggests control of *Orobanche crenata* in faba bean was better with glyphosate (113 g/ha) plus conventional tillage but yields better with glyphosate plus no-tillage. Not clear.)

Ma LiJie, Chen GuiLin, Nie LiSha and Ai Min. 2009. Effect of *Cynomorium songaricum* polysaccharide on telomere length in blood and brain of D-galactose-induced senescence mice. China Journal of Chinese Materia Medica 34(10): 1257-1260. (Concluding that extract of *C. songaricum* can exert an anti-aging effect by increasing telomere length in senescent mice.)

MacRaild, L.M., Radford, J.Q. and Bennett, A.F. 2010. .Non-linear effects of landscape properties on mistletoe parasitism in fragmented agricultural landscapes. Landscape Ecology 25(3): 395-406. (Moderate landscape fragmentation may increase abundance of *Amyema miquelii* but more extreme fragmentation results in a reduction associated with loss of the associated seed-dispersing bird *Dicaeum hirundinaceum.*)

Magani, I.E., Ibrahim, A. and Avav, T. 2009. *Fusarium oxysporum* and post-emergence herbicide for the control of the parasitic plant *Striga hermonthica* in maize. Biocontrol Science and Technology 19(9/100: 1023-1032. (Claiming useful control of *S. hermonthica* by *F. oxysporum* but best when followed by triclopyr herbicide.)

Martin, M., Gavazov, K., Körner, C., Hättenschwiler, S. and Rixen, C. 2010. Reduced early growing season freezing resistance in alpine treeline plants under elevated atmospheric CO_2. Global Change Biology

16(3): 1057-1070. (Higher CO_2.levels did not increase the susceptibility of *Melampyrum pratense* to frost.)

Maširevic´, S. and Medic´-Pap, S. 2009. Broomrape in Serbia from its occurence till today. Helia 32(51): 91-100. (Describing the spread of *Orobanche cumana* race E in Serbia, believed to have been introduced with confectionary sunflower in the 1990s.)

Masran Md Salleh, Hwai YapYee and Md. Kamal Saad. 2009. High conservation value forests in the state of Perak, Malaysia.; Forestry Department Malaysian Forester 72(1): 111-116,. (The presence of *Rafflesia* spp. among the criteria for the designation of High Conservation Value Forest.)

Mathiasen, R. 2010. First report of white fir dwarf mistletoe (*Arceuthobium abietinum* f. sp. *concoloris*) on Mexican spruce (*Picea mexicana*) in Northern Mexico. Plant Disease 94(5): 635.

Mathiasen, R. and Daugherty, C. 2010. First report of limber pine dwarf mistletoe (*Arceuthobium cyanocarpum*) on sugar pine (*Pinus lambertiana*) from California. Plant Disease 94(1): 134. (Occurring close to heavily infected limber pine.)

Mathiasen, R.L. and Daugherty, C.M. 2009. *Arceuthobium abietinum* subspecies *wiensii*, a new subspecies of fir dwarf mistletoe (Viscaceae) from Northern California and Southern Oregon. Madroño 56(2): 118-126. (Distinguishing this new subspecies, attacking red fir and Brewers spruce, from *A. abietinum* ssp. *concolor* (on white fir) and ssp. *magnificae* (on red fir) on morphological and host-range differences.)

Mathiasen, R.L., Daugherty, C.M. and Reif, B.P. 2009. *Arceuthobium rubrum* (Viscaceae) in Mexico. Madroño 56(2): 99-103. (Establishing that the disjunct population in S. Mexico previously given specific status as *A, oaxacanum* is not morphologically or genetically distinguishable from *A. rubrum*.)

Matsuo, Y. and Mimaki, Y. 2010. Lignans from *Santalum album* and their cytotoxic activities. Chemical and Pharmaceutical Bulletin 58(4): 587-590. (Several compounds caused human tumor cell deaths by induction of apoptosis.)

Meighani, F., Minbashi, M. and Yazdani, M. 2009. Study of tomato (*Lycopersicon esculentum*) cultivars tolerance to *Orobanche aegyptiaca*. Applied Entomology and Phytopathology 77(1): Pe93-Pe111. (Cultivar Petorak proved most tolerant and Primoearly the most susceptible (in Iran).)

Menkir, A., Adetimirin, V.O., Yallou, C.G. and Gedil, M. 2010. Relationship of genetic diversity of inbred lines with different reactions to *Striga hermonthica* (Del.) Benth and the performance of their crosses. Crop Science 50(2): 602-611. (In a study of 45 diallel crosses of 10 parental lines of maize in Benin and Nigeria, the broad range of genetic divergence detected with AFLP markers indicates a significant reservoir of diversity among resistant lines that can be exploited in breeding.)

Merckx, V., Bidartondo, M.I. and Hynson, N.A. 2009. Myco-heterotrophy: when fungi host plants. Annals of Botany 104: 1255-1261. (A useful general review, noting that there are over 400 species of fully myco-heterotrophic plants in ten angiosperm families.)

Merckx, V. and Freudenstein, J.V. 2010. Evolution of mycoheterotrophy in plants: a phylogenetic perspective. New Phytologist 185(3): 605-609. (Reviewing research on mycoheterotroph phylogeny, and the taxonomic and evolutionary contexts of mycoheterotrophy.)

Meulebrouck, K., Verheyen, K., Brys, R. and Hermy, M. 2009. Metapopulation viability of an endangered holoparasitic plant in a dynamic landscape. Ecography 32(6): 1040-1050. (Studying the effects of different management systems for optimum survival of *Cuscuta epithymum* in a heathland habitat.)

Meulebrouck, K., Verheyen, K., Brys, R. and Hermy, M. 2009. Limited by the host: host age hampers establishment of holoparasite *Cuscuta epithymum*. Acta Oecologica, 35(4): 533-540. (Establishment of the endangered *C. epithymum* is greater on younger *Calluna vulgaris* and is thus affected by the heathland management regime.)

Meulebrouck, K., Verheyen, K., Hermy, M. and Baskin, C. 2010. Will the sleeping beauties wake up? Seasonal dormancy cycles in seeds of the holoparasite *Cuscuta epithymum*. Seed Science Research 20(1): 23-30. (Dormancy in seeds of *C. epithymum* declined over the winter but was re-imposed with higher spring temperatures. Most seeds had germinated after 31 months.)

Midega, C.A.O., Khan, Z.R., Amudavi, D.M., Pittchar, J. and Pickett, J.A. 2010. Integrated management of *Striga hermonthica* and cereal stemborers in finger millet (*Eleusine coracana* (L.) Gaertn.) through intercropping with *Desmodium intortum*. International Journal of Pest Management 56(2): 145-151. (Intercropping finger millet with *D. intortum* suppressed *S. hermonthica* and stem-boroers and increased yields in W. Kenya.)

Mishra, J.S. 2009. Biology and management of *Cuscuta* species. Indian Journal of Weed Science 41(1/2): 1-11. (Reviewing problems from *C. campestris* and *C. reflexa* in India, and their control by cultural practices and herbicides.)

Monira, P., Koyama, Y., Fukutomi, R., Yasui, K., Isemura, M. and Yokogoshi, H. 2009. Effects of Japanese mistletoe lectin on cytokine gene expression in human colonic carcinoma cells and in the mouse intestine. Biomedical Research 30(5): 303-309. (Using ‘yellow-berry mistletoe’ (*Viscum album*).)

Montague-Drake, R.M., Lindenmayer, D.B. and Cunningham, R.B. 2009. Factors affecting site occupancy by woodland bird species of conservation concern. Biological Conservation 142(12): 2896-2903.

(Factors discussed include presence of mistletoe (unspecified).)

Moore, T.E., Verboom, G.A. and Forest, F. 2010. Phylogenetics and biogeography of the parasitic genus *Thesium* L. (Santalaceae), with an emphasis on the Cape of South Africa. Botanical Journal of the Linnean Society 162(3) 435-452. (Shows the early divergence of clades including what the authors term 'superasterid' with the Santalales.)

Morimoto, K. and Matoba, I. 2009. Addition to the genus *Smicronyx* of Japan (Coleoptera: Curculionidae). Entomological Review of Japan 64(1): 67-72. (Describing a new species, *S. japonicus* from the ovaries of *Cuscuta pentagona* (?= *C, campestris*).)

Moshi, M.J., Innocent, E., Masimba, P.J., Otieno, D.F., Weisheit, A., Mbabazi, P., Lynes, M., Meachem, K., Hamilton, A. and Urassa, I. 2009. Antimicrobial and brine shrimp toxicity of some plants used in traditional medicine in Bukoba District, north-western Tanzania. Tanzania Journal of Health Research 11(1): pp 23-28. (*Strombosia scheffleri* (Olacaceae) showed activity against skin infections and gastrointestinal bacteria, supporting its traditional uses.)

Motazedi, S., Jahedi, A. and Farnia, A. 2010. Integrated broomrape (*Orobanche aegyptiaca*) control by sulfosulfuron (WG 75%) herbicide with wheat mulch applied in field potato. Proceedings of 3rd Iranian Weed Science Congress, Volume 2: Key papers, weed management and herbicides, Babolsar, Iran, 17-18 February 2010: 227-229. (Potato yield loss from *O. aegyptiaca* estimated at 71%. Good control and yiled benefit recorded from sulfosulfuron +/- wheat mulch.)

Mounnissamy, V.M., Subramanian Kavimani, Gnanapragasam Sankari, Dhayalamurthi S., Quine, S.D. and Subramani, K. 2009. Effect of *Cansjera rheedii* J. Gmelin (Opiliaceae) on diuretic activity in rats. Journal of Pharmacy Research 2(10): 1627-1628. (Results support the traditional use of *C. rheedii* as a diuretic agent.)

Munro, N.T., Moseby, K.E. and Read, J.L.2009. The effects of browsing by feral and re-introduced native herbivores on seedling survivorship in the Australian rangelands. Rangeland Journal 31(4): 417-426. (*Santalum lanceolatum* was relatively unaffected by different grazing regimes involving cattle and/or rabbits.)

Muratore, A., Clinet, J.C. and Duñach, E. 2010. Synthesis of new exo- and endo-3,8-dihydro--santalols and other norbornyl-derived alcohols. Chemistry and Biodiversity 7(3): 623-628.

Nehmann, N., Schade, U.M., Pfüller, U., Schachner, M. and Schumacher, U. 2009. Mistletoe lectin binds to multidrug resistance-associated protein MRP5. Anticancer Research 29(12): 4941-4948. (Suggesting that *V. album* extracts interact mainly with carbohydrate and very little with protein.)

Nezamabadi, N., Haghdadi, S., Minbashi, M. and Meighani, F. 2010. Investigating broomrape chemical control in potato under controlled and natural conditions. Proceedings of 3rd Iranian Weed Science Congress, Volume 2: Key papers, weed management and herbicides, Babolsar, Iran, 17-18 February, 2010: 264-267. (Best results on *Orobanche aegyptiaca* btained with rimsulfron 30 g/ha applied 30, 40 and 50 days after planting.)

Nickrent, D. L., Malécot, V., Vidal-Russell, R. and Der, J.P. 2010. A revised classification of Santalales. Taxon 59: 538-558. (Molecular and morphological data were used to revise the classification of the sandalwood order. Four new family names as well as a new classification for Loranthaceae are proposed.)

Nikam, T.D. and Barmukh, R.B. 2009. GA_3 enhances in vitro seed germination in *Santalum album*. Seed Science and Technology 37(2): 276-280. (Good germination achieved when the endocarp was removed and seeds pre-treated with GA_3 for 12 h, then inoculated on Murashige and Skoog's medium fortified with or without benzylamino purine.)

Nun, N.B. and Mayer, A.M. 2009. Possible function of isoleucine in the methyl jasmonate response of *Arabidopsis* to *Phelipanche aegyptiaca*. Phytoparasitica 37(5): 485-488. (Demonstrating that the partial resistance to *P. aegyptiaca* induced by methyl jasmonate is greatly enhanced by exposure to isoleucine.)

Odhiambo, J.J.O., Ogola, J.B.O. and Madzivhandila, T. 2010. Effect of green manure legume - maize rotation on maize grain yield and weed infestation levels. African Journal of Agricultural Research 5(8): 618-625. (*Mucuna*, lablab, sunhemp and cowpea reduced weeds in following maize crop compared with natural fallow. *Striga asiatica* among the weeds but no further useful information in abstract.)

Ofem, O.E., Eno, A.E., Nku, C.O. and Antai, A.B. 2009. *Viscum album* (mistletoe) extract prevents changes in levels of red blood cells, PCV, Hb, serum proteins and ESR in high salt-fed rats. Journal of Ethnopharmacology 126(3): 421-426. (Suggesting extracts of *V. album* help to prevent increased blood viscosity.)

Ogura-Tsujita, Y., Gebauer, G., Hashimoto, T., Umata, H. and Yukawa, T. 2009. Evidence for novel and specialized mycorrhiza; parasitism: the orchid *Gastrodia confusa* gains carbon from saprophytic *Mycena.* Proceedings of the Royal Society, Series B, Biological Sciences 276: 761-767. (Demonstrating that *G. confusa* gains carbon through parasitism of wood or litter decaying fungi.)

Okiei, W., Ogunlesi, M. and Ademoye, M.A. 2009. An assessment of the antimicrobial properties of extracts of various polarities from *Chasmanthera dependens*, *Emilia coccinea* and *Cuscuta australis*, herbal medications for eye diseases. Journal of Applied Sciences 9(22): 4076-4080. (Extracts of *C. australis* exhibited some anti-microbial activity, supporting its medicinal use in Nigeria.)

Oliva, J. and Colinas, C. 2010. Epidemiology of *Heterobasidion abietinum* and *Viscum album* on silver fir (*Abies alba*) stands of the Pyrenees. Forest Pathology 40(1): 19-32. (*V. album* in the Spanish Pyrenees commonest on large trees and south-facing slopes. No association suggested with root rot *H. abietinum*.)

Osadebe, P.O. and Omeje, E.O. 2009. Comparative acute toxicities and immunomodulatory potentials of five Eastern Nigeria mistletoes. Journal of Ethnopharmacology 126(2): 287-293. (Comparing extracts of '*Loranthus micranthus*' (= *Ileostylus micranthus*) growing on 5 different hosts. All had useful immunomodulatory potential, the best being from *Kola acuminate*.)

*Ostermann, T., Raak, C. and Büssing, A. 2009. Survival of cancer patients treated with mistletoe extract (Iscador): a systematic literature review. BioMed Central Ltd, London, UK, BMC Cancer 9(451) (http://www.biomedcentral.com/1471-2407/9/451) (An extensive meta-analysis of published results on use of *V. album* extract, concluding there is distinct evidence for benefit to cancer sufferers.)

Otieno, J.N.,Hosea, K.M.M., Lyaruu, H.V. Mahunnah, R.L.A. 2008. Multi-plant or single-plant extracts, which is the most effective for local healing in Tanzania? African Journal of Traditional, Complementary and Alternative Medicines 5(2): 165-172. (*Ximenia caffra* (Olacaceae) among herbs showing enhanced bactericidal activity in mixtures with others.)

Page, S.L.J., Karanja, D.K., Mbwaga, A.M., Letayo, E.A.S. and Nsemwa, L.T.H. 2010. The underlying cause of the 2009 sorghum failure in Kongwa district and its implications for Tanzania's vulnerability to climate change. Food Security 2(2): 157-167. (Low yields attributed to drought, covered kernel smut and *Striga hermonthica* the latter aggravated by shortage of seed of *Striga*-resistant varieties, Hakika and Wahi,)

Paliwal, A.K. and Beena Kumari 2009. 'Angiospermic dicots's' havoc by *Cuscuta* spp. of Bageshwar district in Kumaon of Uttarakhand. Advances in Plant Sciences 22(2): 573-574. (Listing 48 species in 33 families affected by *C. reflexa*.)

Pan YingNi, Morikawa, T., Ninomiya, K., Imura, K., Yuan Dan, Yoshikawa, M. and Muraoka, O. 2010. Bioactive constituents from Chinese natural medicines. XXXVI. Four new acylated phenylethanoid oligoglycosides, kankanosides J1, J2, K1, and K2, from stems of *Cistanche tubulosa*. Chemical and Pharmaceutical Bulletin 58(4): 575-578. (Several compounds found to inhibit D-galactosamine-induced cytotoxicity in primary cultured mouse hepatocytes.)

Parmar, R.R., Bhuva, H.A., Joshi, A.A. and Jadhav, R.B. 2010. Optimization of extraction method for recovery of antioxidant phenolics from Loranthaceae mistletoes. Asian Journal of Chemistry 22(5): 3851-3855. (Studying optimum techniques for extraction of antioxidant phenolics from *Dendrophthoe trigona* in India.)

Patil Amol, Patil Vikas, Chaudhari Kundan, Patil Vijay and Chaudhari Rajesh 2009. In vitro free radicals scavenging activity of stems of *Cuscuta reflexa.* Journal of Pharmacy Research 2(1): 58-61.

Patil, C.R., Jadhav, R.B., Singh, P.K., Sneha Mundada and Patil, P.R. 2010. Protective effect of oleanolic acid on gentamicin induced nephrotoxicity in rats. Phytotherapy Research 24(1): 33-37. (Oleanolic acid isolated from the cuticular epithelium of *Viscum articulatum* protected against gentamicin-induced renal damage in rats.)

Pérez-de-Luque, A., Eizenberg, H., Grenz, J.H., Sillero, J.C., Ávila, C., Sauerborn, J., Rubiales, D., Rubiales, D., Duc, G. and Stoddard, F. 2010. Broomrape management in faba bean. Field Crops Research 115(3): 319-328. (Reviewing present and possible future control strategies for *Orobanche crenata* and emphasising the need for an integrated approach.)

Petrichenko, V.M., Suchinina, T.V., Syropyatov, B.Y. and Shestakova, T.S. 2009. The hypotensive activity of extracts from some plants of the Scrophulariaceae family occurring in perm territory. Rastitel'nye Resursy 45(1): 140-147. (Hypotensive activity of *Euphrasia brevipila, Odontites vulgaris, Rhinanthus vernalis* and *Melampyrum pratense* was higher than that of non-parasitic members of the family.)

Piato, A.L., Detanico, B.C., Linck, V.M., Herrmann, A.P., Nunes, D.S. and Elisabetsky, E. 2010. Anti-stress effects of the 'tonic' *Ptychopetalum olacoides* (Marapuama) in mice. Phytomedicine 17(3/4): 248-253. (Results suggest that *P. olacoides* might possess moderate adaptogen-like properties.)

Prashant Yadav, Ashok Kumar, Vihan, V.S. and Kanhiya Mahour. 2009. In vitro adulticidal screening of various plant extract against adult *Haemonchus contortus*. Journal of Pharmacy Research 2(7): 1262-1263. (Including results with *Cuscuta reflexa*.)

Preiss, K., Adam, I.K.U. and Gebauer, G. 2010. Irradiance governs exploitation of fungi: fine-tuning of carbon gain by two partially myco-heterotrophic orchids. Proceedings of the Royal Society of London. Series B, Biological Sciences 277(1686)1333-1336. (Showing that two green *Cephalanthera* species are myco-heterotrophic under low light conditions but largely autotrophic under higher light.)

Pujadas Salvà, A.J. and Muñoz Garmendia, J.F. 2010. *Orobanche pseudo-rosmarina* A. Pujadas et Muñoz Garm. sp. nov. (Orobanchaceae) from the eastern

Mediterranean region. Acta Botanica Croatica 69(1): 1-6. (*O. pseudo-rosmarina* is applied to specimens previously wrongly ascribed to *O. rosmarina*.)

Pusalkar, P.K. and Singh, D.K. 2010. Lectotypification and status of *Pedicularis oederi* Vahl var. *heteroglossa* Prain (Orobanchaceae). Edinburgh Journal of Botany 67(1): 57-64. (This taxon has purple-pink corollas rather than the usual yellow of *Pedicularis oederi*.)

Quan JiShu, Piao Long, Wang Xia, Li Tian and Yin XueZhe. 2009. Rossicaside B protects against carbon tetrachloride-induced hepatotoxicity in mice. Basic and Clinical Pharmacology and Toxicology 105(6): 380-386. (Exploring the protective effect of rossicaside B, the major phenylpropanoid glycoside from *Boschniakia rossica*,)

Quiñonez Barraza, S. and Mathiasen, R. 2010. First report of *Arceuthobium blumeri* on *Pinus ayacahuite* and *A. globosum* subsp. *globosum* on *P. durangensis* from Sinaloa, Mexico. Plant Disease 94(3): 377.

Radutoiu, D. 2009. *Euphrasia liburnica* from Romania. Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Horticulture 66(1): 674. (New studies confirm the presence of *E. liburnica* in Romania.)

Rajakaruna, N., Harris, T.B. and Alexander, E.B. 2009. Serpentine geoecology of eastern North America: a review. Rhodora 111(945): 21-108. (Noting occurrence of the endangered species *Agalinis acuta*.)

Rakaj, M. 2009. Floristic and chorological news from north Albania. Botanica Serbica: 33(2): 177-183. (*Melampyrum nemorosum* newly recorded in Albania.)

Rakesh Ghosh, Chattopadhyay, P.K., Budhhadeb Chattopadhyay and Debasish Pal. 2010. Antibiotic resistance profile of halophilic microorganisms isolated from tannery effluent. Indian Journal of Biotechnology 9(1): 80-86. (Including reference to *Santalum acuminatum*.)

Rakotoniriana, E.F., Rajaonarison, J.F., Raoelison, E.G., Rajaonarivelo, J.P., Manga, N., Solofoniaina, M., Rakotonirina, B., Randriamampionona, D., Rabemanantsoa, C., Cheuk, K., Urveg-Ratsimamanga, S. and Leclercq, J.Q. 2010. Antimicrobial activity of 23 endemic plants in Madagascar. Tropical Journal of Pharmaceutical Research 9(2) 165-171. (Including results with *Rhopalopilia perrieri* (Opiliaceae).)

Ramírez Dávila, J.F. and Porcayo Camargo, E. 2010. (A comparative study of the spatial distribution of the dwarf mistletoe (*Arceuthobium* sp.) on the north slope of the National Park Nevado de Toluca, Mexico.) (in Spanish) Bosque 31(1): 28-38. (A statistical study on distribution patterns of an unspecified *Arceuthobium* sp. in Mexico.)

Ramu, P., Kassahun, B., Senthilvel, S., Kumar, C.A., Jayashree, B., Folkertsma, R.T., Reddy, L., Kuruvinashetti, M.S., Haussmann, B.I.G. and Hash, C.T. 2009. Exploiting rice-sorghum synteny for targeted development of EST-SSRs to enrich the sorghum genetic linkage map. TAG Theoretical and Applied Genetics 119(7): 1193-1204. (Demonstrating the use of comparative genomic information in targeted development of markers to fill gaps in linkage maps with particular reference to *Striga*-resistance.)

Renner, S.S., Schaefer, H., Crane, P.R., Friis, E.M. and Chaloner, W.G. 2010. The evolution and loss of oil-offering flowers: new insights from dated phylogenies for angiosperms and bees. Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences 365(1539): 423-435. (Noting *Krameria* species (Krameriaceae) among the more recently evolved plants to have oil-bearing flowers.)

Roat, B.L., Jeewa Ram and Choudhary, S.L. 2009. Effect of partially purified plant products preparation against *Alternaria alternata* (Fr.) Keissler inciting fruit rot of chilli. Current Agriculture 33(1/3): 79-82. (Extracts of *Santalum album* apparently not effective.)

Rodenburg, J., Riches, C.R. and Kayeke, J.M. 2010. Addressing current and future problems of parasitic weeds in rice. Crop Protection 29(3): 210-221. (A detailed review of the problems caused by *Striga hermonthica*, *S. asiatica*, *S. aspera* and *Rhamphicarpa fistulosa* in rice in Africa and Indian Ocean islands and discussing management options and opportunities for research for development.)

Rotta, E., de Araujo, A.J. and de Oliveira, Y.M.M. 2006. (Urban trees attacked by mistletoe in a municipal central park of Curitiba city, Paraná: a case study.) (in Portuguese) Boletim de Pesquisa e Desenvolvimento - Embrapa Florestas 26, pp 25. (About 14% of trees affected by one or other of *Tripodanthus acutifolius*, *Struthanthus vulgaris* or *S. polyrhysus*.)

Rubiales, D., Fernández-Aparicio, M., Moral, A., Barilli, E., Sillero, J.C. and Fondevilla, S. 2009. Disease resistance in pea (*Pisum sativum* L.) types for autumn sowings in Mediterranean environments. Czech Journal of Genetics and Plant Breeding 45(4): 135-142. (Reviewing problems and progress in breeding for resistance to *Orobanche crenata* and several fungal diseases.)

Rumsey, F. 2009. *Orobanche caryophyllacea*: Orobanchaceae. Curtis's Botanical Magazine 26(4): 369-378. (The distribution, ecology and taxonomic history of *O. caryophyllacea* are discussed and the species described and illustrated. The use of *Orobanche* spp. as horticultural subjects is briefly considered.)

Runyon, J.B., Mescher, M.C., Felton, G.W., de Moraes, C.M. 2010. Parasitism by *Cuscuta pentagona* sequentially induces JA and SA defence pathways in tomato. Plant, Cell and Environment 33(2): 290-303. (Confirming that the defensive responses to *C. pentagona* in older tomato plants are comparable to those elicited by herbivore and fungal attack.)

Runyon, J.B., Mescher, M.C., de Moraes, C.M., Jander, G. and Howe, G. 2008. Parasitism by *Cuscuta pentagona* attenuates host plant defenses against insect herbivores. Plant Physiology 146(3): 987-995. (Infection of tomato by *C. pentagona* reduces the release of the antiherbivore phytohormone jasmonic acid when the tomato is then attacked by army worm (*Spodoptera exigua*).)

Sabová, L., Pilátová, M., Szilagyi, K., Sabo, R. and Mojzĭši, J. 2010. Cytotoxic effect of mistletoe (*Viscum album* L.) extract on Jurkat cells and its interaction with doxorubicin. Phytotherapy Research 24(3) 365-368. (Synergism between *V. album* extract and doxorubicin only shown at high doses.)

Schuch, U.K. and Kelly, J.J. 2008. Palo verde trees for the urban landscape. Aridus 20(1): 1-6. (Including information on the occurrence of mistletoes (?*Phoradendron* spp.) in a range of *Parkinsonia* spp. in Arizona, USA.)

Schuch, U.K. and Kelly, J.J. 2007. Mesquite trees for the urban landscape. Aridus 19(2): 1-5. (Including reference to problems from *Phoradendron californicum* in Arizona, USA.)

Selvi, B. and Kadamban, D. 2009. Studies on the parasitic plants of Pondicherry Engineering College Campus, Puducherry. International Journal of Plant Sciences (Muzaffarnagar) 4(2): 547-550. (*Dendrophthoe falcata* and *Cassytha filiformis* each found on more than 20 host species; *D. falcata* for the first time on *Moringa oleifera*.)

She GaiMei, Hu JinBo, Zhang YingJun and Yang ChongRen. 2010. Phenolic constituents from *Rhopalocnemis phalloides* with DPPH radical scavenging activity. Pharmaceutical Biology 48(1): 116-119. (Identifying two *bis*-catechinylmethanes in extracts of *R. phalloides* (Balanophoraceae) with high radical scavenging properties.)

Shen Hao, Prider, J.N., Facelli, J.M. and Watling, J.R. 2010. The influence of the hemiparasitic angiosperm *Cassytha pubescens* on photosynthesis of its host *Cytisus scoparius.* Functional Plant Biology 37(1): 14-21. (*C. pubescens* causes damage, even death, of the invasive *C. scoparius*, due to a combination of reduced photosynthesis (from stomatal closure) and increased photosensitivity.)

Shimoda, H., Tanaka, J., Takahara, Y., Takemoto, K., Shan ShaoJie and Su MuhHwan. 2009. The hypocholesterolemic effects of *Cistanche tubulosa* extract, a Chinese traditional crude medicine, in mice. American Journal of Chinese Medicine 37(6): 1125-1138.

Singer, M.C. and McBride, C.S. 2010. Multitrait, host-associated divergence among sets of butterfly populations: implications for reproductive isolation and ecological speciation. International Journal of Organic Evolution 64(4): 921-933. (The butterfly, *Euphydryas editha* shows divergent biotypes, associated with the different hosts *Collinsia torreyi* and *Pedicularis semibarbata*.)

Smith-Ramirez, C., Celis-Diez, J.L., von Jenstchyk, E., Jimenez, J.E. and Armesto, J.J. 2010. Habitat use of remnant forest habitats by the threatened arboreal marsupial *Dromiciops gliroides* (Microbiotheria) in a rural landscape of southern Chile. Wildlife Research 37(3): 249-254. (Concluding that the abundance of *D. gliroides* was correlated with inter-connectedness of remnant forest patches but not clearly with the occurrence of *Tristerix corymbosus* whose fruits are a favoured food source.)

Smithies, S.J. and Burgoyne, P.M. 2009. *Cytinus visseri*: Cytinaceae. Curtis's Botanical Magazine 26(4): 322-332. (The rediscovery, distribution, morphology and pollination of a *C. visseri* are discussed and illustrated and its cultivation considered.)

Soberón, J.R., Sgariglia, M.A., Sampietro, D.A., Quiroga, E.N., Sierra, M.G. and Vattuone, M.A. 2010. Purification and identification of antibacterial phenolics from *Tripodanthus acutifolius* leaves. Journal of Applied Microbiology 108(5): 1757-1768. (Several antibacterial compounds isolated from *T. acutifolius* (Loranthaceae).)

Soliman, I.E. and Email, A.E. 2010. Efficacy of some weed control treatments on dodder (*Cuscuta epilinum*), annual weeds, growth characters and yield and its components of flax (*Linum usitatissimum* L.). Alexandria Journal of Agricultural Research 55(1): 21-29. (Showing control of *C. epilinum* by butralin pre-emergence and by metosulam and tribenuron-methyl post-emergence.)

Soto, M. J., Fernández-Aparicio, M., Castellanos-Morales, V., García-Garrido, J.M., Ocampo, J.A., Delgado, M.J. and Vierheilig, H. 2010. First indications for the involvement of strigolactones on nodule formation in alfalfa (*Medicago sativa*). Biology and Biochemistry 42(2): 383-385. (Discussing how GR24 increases nodulation of lucerne by *Sinorhizobium meliloti*.)

Struwe, I., Gertsson, C.A. and Coulianos, C.C. 2009. Insects monophagous on mistletoe (*Viscum album* L.) newly discovered in Sweden: *Cacopsylla visci* (Curtis, 1835) (Hemiptera, Psyllidae) and *Pinalitus viscicola* (Puton, 1888) (Hemiptera, Miridae). Entomologisk Tidskrift 130(3/4): 155-160. (Noting also that *V. album* is now very localised in Scandinavia.)

Suhinina, T.V. and Petrichenko, V.M. 2009. Chemical composition and biological activity of some species of the genus *Euphrasia* (Scrophulariaceae) of the flora of Russia. Rastitel'nye Resursy 45(4): 129-136. (Reviewing literature on 10 species of *Euphrasia* and confirming hypotensive, anti-inflammatory, anti-microbial, anti-oxidant and hepato-protective activities.)

Sundararaj, R., Karibasavaraja, L.R., Gaurav Sharma and Raja Muthukrishnan. 2008. Hemipteran fauna (Insecta) infesting sandal *Santalum album* Linn. in southern

India. Journal of the Bombay Natural History Society 105(2): 223-226. (No abstract available.)

Tafokou, R.B.J., Dondjang, J.P., Nkongmeneck, B.A., Smith, M. and Kemeuze, V. 2010. (Diversity and sustainable management of Loranthaceae in the uplands of West Cameroon.) (in French) Bois et Forêts des Tropiques 303: 41-52. (Noting that 6 species of Loranthaceae (unspecified in abstract) occur on fruit trees in Cameroon: all are used in traditional medicine and need to be protected.)

Těšitel, J., Plavcová, L. and Cameron, D.D. 2010. Heterotrophic carbon gain by the root hemiparasites, *Rhinanthus minor* and *Euphrasia rostkoviana* (Orobanchaceae). Planta 231(5): 1137-1144. (Concluding that *R. minor* and *E. rostkoviana* adult plants derive c. 50 and 25% of their carbon from their hosts.)

Tewodros Mesfin, Tesfahunegn, G.B., Wortmann, C.S., Mamo, M. and Olani Nikus 2010. Skip-row planting and tie-ridging for sorghum production in semiarid areas of Ethiopia. Agronomy Journal 102(2): 745-750. (Under dry conditions, skip-row planting and tied ridges are shown to be beneficial in the presence of both *Striga hermonthica* and *S.asiatica*,)

Thorogood, C.J. and Hiscock, S.J. 2010. Compatibility interactions at the cellular level provide the basis for host specificity in the parasitic plant *Orobanche*. New Phytologist 186(3): 571-575. (*Orobanche minor* and *O. picridis* showed compatibility with their natural hosts, *Picris hieracioides* and *Crepis capillaris*, however in each treatment, some attachments elicited a resistance response characterised by obstructions at the endodermis, or within the stele, comparable with those observed in resistant crop cultivars.)

Tojibaev, K.S. and Holubec, V. 2010. Monitoring of the relic endemics of Uzbekistan's flora. Czech Journal of Genetics and Plant Breeding 46(Special Issue): S45-S46. (Discussing the endemic *Thesium minkwitzianum*.)

Tonessia, C., Wade, M., Cissé, N. and Severin, A. 2009. (Characterization of *Striga gesnerioides* from Senegal: reaction of various cowpeas (*Vigna unguiculata* (L.) Walp.) to *Striga gesnerioides* strains from Sénégal.) (in French) Journal of Applied Biosciences 24: 1462-1476. (Strains of *S. gesnerioides* appear to differ from the 5 others in W. Africa, but cultivars B301 and IT81D-994 are resistant to all, and other cowpea lines are resistant to one or more populations.)

Torretta, J.P. and Basilio, A.M. 2009. (Pollen dispersion and reproductive success of four tree species of a xerophytic forest from Argentina.) (in Spanish) Revista de Biología Tropical 57(1/2): 283-292. (*Jodina rhombifolia* (Santalaceae) is entomophylous, although spontaneous autogamy could favor reproduction in the absence of pollinators.)

Troncoso, A.J., Cabezas, N.J., Faúndez, E.H., Urzúa, A. and Niemeyer, H.M. 2010. Host-mediated volatile polymorphism in a parasitic plant influences its attractiveness to pollinators. Oecologia 162(2): 413-425. (Showing that insects as well as birds are involved in pollination of *Tristerix verticillatus* and that they are attracted by volatiles, differing according to the host tree species.)

Ukwe, C.V., Ubaka, C.M. and Madusque, U.J. 2009. Evaluation of the antiulcer activity of *Olax subscorpioidea* Oliv. roots in rats. Asian Pacific Journal of Tropical Medicine 3(1): 13-16. (Results suggest that the roots of *O. subscorpioidea* possess antiulcer activity in experimental rats as claimed by traditional users in Nigeria)

Uzochukwu, I.C. and Osadebe, P.O. 2008. Ultra-violet spectroscopic studies of extracts of *Loranthus micranthus* Linn parasitic on *Kola acuminata*. Bio-Research 6(1): 308-310. (Describing methodology for the separation and identification of compounds from *L. micranthus* (= *Ileostylus micranthus*).)

Vachev, T., Ivanova, D., Minkov, I., Tsagris, M. and Gozmanova, M. 2010. Trafficking of the potato spindle tuber viroid between tomato and *Orobanche ramosa*. Virology 399(2): 187-193. (Confirming that PSTV was transferred from the host tomato to *O. ramosa* and replicates in the latter, but does not move from parasite to host.)

Vicas, S., Prokisch, J., Rugina, D. and Socaciu, C. 2009. Hydrophilic and lipophilic antioxidant activities of mistletoe (*Viscum album*) as determined by FRAP method. Notulae Botanicae, Horti Agrobotanici, Cluj-Napoca 37(2): 112-116. (Extracts of *V. album* from apple particularly high in anti-oxidant activity.)

Vicaş, S.I. Rugină, D., Pantea, S. and Socaciu, C. 2009. The morphological features and UV-VIS analysis of some taxonomic markers of genus *Viscum*. Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Agriculture 66(1): 193-200. (Recording differences in the chlorophyll composition between, and within, 5 varieties of *V. album* from *Acer campestre*, *Malus domestica*, *Fraxinus excelsior*, *Populus nigra* and *Robinia pseudoacacia*, considered to be correlated with therapeutic properties.)

Viceconte, K.S.de M. and Maia, V.C. 2009. (New genus and new species of Diptera, Cecidomyiidae, associated to *Psittacanthus dichrous* (Loranthaceae).) (in Portuguese) Arquivos do Museu Nacional 67(1/2): 35-40. (*Costadiplosis mancaensis*, a new genus and species of Clinodiplosini induces spherical galls on *Psittacanthus dichrous* (Loranthaceae).)

Vurro, M., Bonciani, B. and Vannacci, G. 2010. Emerging infectious diseases of crop plants in developing countries: impact on agriculture and socio-economic consequences. Food Security 2(2): 113-132 . (*Striga* *hermonthica* listed among major infectious diseases affecting developing country agriculture.)

Wada, A.C., Joshua, S.D., Ndarubu, A.A. and Usman, A. 2010. Pests and diseases of field crops and farmers' management practices in zone ii of Niger State Agricultural Development Project, Kuta, Nigeria. Phytopathology and Plant Protection 43(1/3): 216-225. (Including reference to *Striga hermonthica* and methods for its control.)

Waddington, S.R., Li XiaoYun, Dixon, J., Hyman, G. and de Vicente, M.C. 2010. Getting the focus right: production constraints for six major food crops in Asian and African farming systems. Food Security 2(1): 27-48. (A wide-ranging survey, identifying *Striga* as a major constraint in sorghum.)

Wagner, M.L., Ricco, R.A., Ranea, F.G. and Gurni, A.A. 2009. (Flavonoids from Argentine species of *Tripodanthus* (Eichl.) Tiegh. (Loranthaceae).) (in Spanish) Dominguezia 25(1): 21-27. (Identifying the presumed hypotensive components in *T. acutifolius* and *T. flagellaris*.)

Waldie, T., Hayward, A., Beveridge, C.A. and Chao, W.S. 2010. Axillary bud outgrowth in herbaceous shoots: how do strigolactones fit into the picture? Plant Molecular Biology 73(1/2): 27-3. (A detailed review of the topic.)

Walter, M.H., Floss, D.S. and Strack, D. 2010. Apocarotenoids: hormones, mycorrhizal metabolites and aroma volatiles. Planta 232(1): 1-17. (A thorough review of strigolactones that includes a short discussion of their role as germination signals for parasitic plants.)

Wang ChangLin, Guo YuHai, Tu PengFei, Guo QiaoSheng, Wang Shu'an and Sun ChuanQing. 2009. Analysis on *Cistanche tubulosa* that parasites on different *Tamarixs* by RAPD. China Journal of Chinese Materia Medica 34(3): 264-268. (Concluding that *C. tubulosa* types which parasitise different *Tamarix* spp., including *T. hispida* and *T. chinensis* have high genetic diversity.)

Wang JunLong, Zhang Ji, Zhao BaoTang, Wu YiQian, Wang ChunXia and Wang YunPu. 2010. Structural features and hypoglycaemic effects of *Cynomorium songaricum* polysaccharides on STZ-induced rats. Food Chemistry 120(2): 443-451. (Characterising a polysaccharide component of *C. songaricum* with potential anti-diabetic properties.)

Welsh, M., Stefanovic´, S. and Costea, M. 2010. Pollen evolution and its taxonomic significance in *Cuscuta* (dodders, Convolvulaceae). Plant Systematics and Evolution 285(1/2) 83-101. (Continuing intensive study of the genus *Cuscuta*, the Stefanovic lab present extensive data on pollen morphology which supports their large data sets of molecular information. This works shows the genus to fit meaningfully into the family Convolvulaceae.)

Westwood, J.H., Yoder, J.I., Timko, M.P. and de Pamphilis, C.W. 2010. The evolution of parasitism in plants. Trends in Plant Science 15(4): 227-235. (This is a succinct, cogent update on research into the evolution of parasitism in angiosperms by leading experts on the subject. Using powerful molecular techniques, the authors suggest that one key factor was the ability to recognize host plants as well as regulate movement between host and parasite via the haustorium. Like other studies, the presence and function of storied cambial cells in the haustorium is not mentioned.)

Wu Yan, Shi HaiMing, Bao Zhong, Wang MengYue, Tu PengFei and Li XiaoBo 2010. Application of molecular markers in predicting production quality of cultivated *Cistanche deserticola*. Biological and Pharmaceutical Bulletin 33(2): 334-339. (Showing that combined ISSR and RAPD data could categorize *C. deserticola* individuals into three groups according to their respective echinacoside content.)

Wunder, J., He, C.; Hu, J., Li, M., Varotto, C. and Saedler, H. 2010. In: Rohde, W. and Fermin, G. (eds) Evolution of plant biodiversity. Acta Horticulturae 849: 21-3. ('The dynamic nature of the evolution of biodiversity, gain and loss of traits or species is highlighted by two examples concerning spatial genetic population structures and speciation in *Melampyrum…*' (unspecified).)

Wünsche, A. 2009. Distribution of common mistletoe (*Viscum album* subsp. *album*) in the Oberlausitzer Gefilde and the eastern Oberlausitz. Berichte der Naturforschenden Gesellschaft der Oberlausitz 17: 115-118. (A general survey of *V. album* in parts of Saxony, Germany, showing greater range than previously thought and one new host - *Fraxinus pennsylvanica*.)

Xie Hong, Zhu Hui, Cheng Cong, Liang Yu and Wang Zhao. 2009. Echinacoside retards cellular senescence of human fibroblastic cells MRC-5. Pharmazie 64(11): 752-754. (Suggesting echinacoside, a phenylethanoid from *Cistanches salsa*, has potential anti-senescence activity.)

Yahya, A.F., Hyun, J.O., Lee, J.H., Choi, T.B., Sun, B.Y. and Lapitan, P.G. 2010. Distribution pattern, reproductive biology, cytotaxonomic study and conservation of *Rafflesia manillana* in Mt. Makiling, Laguna, Philippines. Journal of Tropical Forest Science 22(2): 118-126. (Concluding that the main threats to *R. manillana* (2n=22) on its host *Tetrastigma harm*and*ii* are from sex ratio imbalance, unsuccessful pollination and seed dispersal; and habitat disturbances caused by tropical typhoons.)

*Yoshida, S., Ishida, J.K., Kamal, N.M., Ali, A.M., Namba, S. and Shirasu, K. 2010. A full-length enriched cDNA library and expressed sequence tag analysis of the parasitic weed, *Striga hermonthica*. BMC Plant Biology 10(55) (http://www.biomedcentral.com/1471-2229/10/55) (Reporting the public availability of a large database of *S. hermonthica* expressed gene sequences: 17,317 unigenes with 10,319 contigs and 6,818 singletons. Includes initial characterization of *Striga* genes to those of other crops and *Triphysara*. A set of SSRs was developed from the database and used to characterize genetic diversity in *Striga* populations.)

Yoshida, S., Maruyama, S., Nozaki, H. and Shirasu, K. 2010. Horizontal gene transfer by the parasitic plant *Striga hermonthica.* Science 328: 1128. (Presenting evidence for the presence in *S. hermonthica* of a nuclear gene normally found in monocots, probably from sorghum.)

Yu FaRong, Liu Ying, Cui YongZhi, Chan ErQing, Xie MingRen, McGuire, P.P. and Yu FaHong. 2010. Effects of a flavonoid extract from *Cynomorium songaricum* on the swimming endurance of rats. American Journal of Chinese Medicine 38(1): 65-73.

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