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MESSAGE FROM THE IPPS PRESIDENT

Dear IPPS Members,

First of all, I would like to acknowledge the time and great efforts devoted by Jim Westwood during his presidency and finally in the election of IPPS executive members. I also thank all members who took part in this important election process. Now the new IPPS executive members are ready to lead the society with continuing support from you all.

The new elected IPPS executive members are now: Julie Scholes (Vice President), John Yoder (Secretary) and Ahmet Uludag (Member at Large), Philippe Delavault (Treasurer), Harro Bouwmeester (Editor), and myself President.

As the first mission of the new IPPS executive members, we are pleased to invite you to the 12th World Congress on Parasitic Plants (WCPP), which will be held on Monday July 15 to Friday July 19, 2013 in Sheffield, UK. The venue will be the Edge Conference facility at the University of Sheffield. We are currently planning sessions and workshops and any inputs from the IPPS members will be highly appreciated. Please contact me or Julie by email. Details of venue, program, and progress can be followed on a special conference website which will be available from the beginning of September 2012 (to follow shortly).

During the VI International Weed Science Congress (IWSC) held in Hangzhou, China, a session on parasitic weeds was held as a joint IPPS symposium with the IWSC (see the meeting report below). To my knowledge, this was the first international symposium on parasitic weeds held in Asia at least in this century. The papers presented in the symposium were a good mix of basic and applied studies, and I was convinced that contributions to IPPS from Asian scientists would increase in the near future. This is because the number of scientists working on parasitic weeds in Asian countries has been gradually increasing probably due to the spreading parasitic weed problems. Thus, we should raise awareness about parasitic weeds in Southeast and East Asian countries where both root and stem parasitic weeds are becoming serious problems.

Finally, I would like to express my sincere appreciation to Jim for his hard work on behalf of the society. Under his leadership, two IPPS meetings in Kusadasi (Turkey) and Martina Franca (Italy) have been held successfully and infrastructure of IPPS including the constitution and election system has been established. Of course I am sure that Jim will continue to support and encourage us and the society.

Sincerely,

Koichi Yoneyama, IPPS President
yoneyama@cc.utsunomiya-u.ac.jp

STRIGA GESNERIOIDES AND STRIGA ASIATICA IN NAMIBIA

As part of ongoing research collaboration among the University of Namibia, State University of New York-Oswego, and Old Dominion University, we surveyed Namibia for *Striga gesnerioides* and *S. asiatica*. Our field work covered 3500 km from the west coast north to the border with Angola and through the central part of the country. There are six species of the genus in Namibia with *Striga gesnerioides* and *S. asiatica* the most frequent. *Striga hermonthica* and *S. forbesii* have been collected but at present do not seem to be an agricultural problem. The other two, *S. elegans* and *S. bilabiatia* ssp *bilabiata* are confined to natural grasslands.

*Striga gesnerioides* is the most variable of all witchweeds in term of morphology and host selection. It is a well-known and often serious parasite of cowpea, *Vigna unguiculata* (Fabaceae). Wild hosts that have been documented in Namibia include species of *Euphorbia* (Euphorbiaceae), *Ipomoea, Jaquemontia*, and *Merremia* (Convolvulaceae); *Indigofera, Alysicarpus* and other wild legumes (Fabaceae), and *Nicotiana* (Solanaceae). Each of these hosts support populations with varying stem color, branching frequency, and flower color. Despite reports that such plants lack chlorophyll (e.g. Fischer et al., 2011, Willdenowia 41: 51-56 – see Literature section below) we have always found chlorophyll, though it is masked by the anthocyanins.

Here we confirm that a member of Bignoniaceae is host to *S. gesnerioides*. Some herbarium labels in Windhoek had suggested *Catophractes* as a possible host but we were able to confirm this now by excavating the parasite and tracing it to the root of the shrub. The flower and stem color of this variant are quite different from other morphotypes. Plants are always a reddish-purple with a purple corolla and a large haustorium (2.5 cm across). Of the various ‘strains’ of this species that we have studied in Africa, the *Catophractes* parasites most closely resemble those parasitizing *Euphorbia*.
Striga gesnerioides parasitising Catophractes alexandri, Outjo, Namibia. The woolly white leaves of the host are obvious.

The cropping system in the communal farming regions of northern Namibia is mixed cropping with millet (Pennisetum americanum), known locally as mahango, and Zea mays the favoured cereals. Fields also contain bambara nuts (Vigna subterranea) and cowpea (Vigna unguiculata) and less frequently peanuts (Arachis hypogea). We found no S. gesnerioides on cowpea or bambara nut though there is one record in the Windhoek herbarium of S. gesnerioides on cowpea, which could be growing on a different host in a cowpea field. However, within these fields this parasite was frequent on Alysicarpus vaginalis and Indigofera arenophila.

The situation with Striga asiatica is much different. At a new commercial maize cropping scheme near Rundu on the Angolan border, S. asiatica was parasitizing the crop. There was a marked increase in infestation since the first cropping season in 2011 when only a few Striga plants were observed. As a result, we examined about a dozen traditional fields that had mixed crops of mahango and maize. No witchweed was found on mahango or sorghum even when the maize was seriously attacked in the same field. Maize, a New World crop, is particularly susceptible to witchweed.

S. asiatica is native in Namibia and occurs scattered in acacia bush savannas. It is not clear if this is the source of the agronomically important parasites. S. asiatica parasitizing grasses has consistently shorter and round corolla lobes. We plan further research using molecular markers to determine the variability within both species of witchweed.

Striga asiatica on Digitaria in Northern Namibia showing the short corolla lobes.

Witchweed parasitizing maize in a mixed mahango/maize field, Rundu, Northern Namibia

Several of the farmers we interviewed were unaware of the damage that S. asiatica can do to maize so it is important that a program for making them aware of the parasite, its potential, and its control be instituted as soon as possible.

Erika Maass, University of Namibia;
Kamal Mohamed, State University of New York-Oswego;
Lytton Musselman, Old Dominion University.
NOTE ON THE COMMERCIAL USE OF XIMENIA AMERICANA

Known by the unhelpful common name of hogplum, Ximenia americana is a thorny, deciduous shrub in the family Ximeniaceae (formerly placed in the Olacaceae). In colloquial American English, a plant common name with ‘hog’ in it usually refers to something of inferior value to the original. However, the fruit of hogplum is quite tasty - as good as a real plum. It is also known as tallow wood.

Fruits of Ximenia americana Photo Lytton Musselman

This is perhaps the most widely distributed native parasitic plant on the globe. (The most widely distributed parasitic weed is Cuscuta campestris, native to the United States but spread around the globe.) I have seen stands of Ximenia in southern Florida in the United States where hogplum is common in dwarf oak sand scrub, central Sudan where the green color of the leaves stand out in the dry season, New Caledonia where it forms thickets near the coast, and many places in western and southern Africa. But it is also reported to form dense stands in Australia and elsewhere in tropical and semi-tropical regions in both the Western and Eastern hemispheres.

I have traced its parasitic attachments to a diversity of hosts, it is a generalist in host selection. Germination of the large seeds is easy and unique. As the epicotyl emerges, the first two formed leaves, cataphylls, bend back into the inter-cotyledon space. Early naturalists noticed this and suggested that these cataphylls were forming parasitic attachments within the seed. Careful examination, however, shows that this is not the case, there is no connection between the cotyledons and cataphylls.

During a recent visit to Namibia, I was surprised to learn of an industry that has arisen around this parasitic shrub. X. americana and the more restricted X. africana are quite common in the central and northern region of that country and the fruits are collected for the oil expressed from the seeds. In 2011, 16.5 tons of seeds where harvested for a value of approximately US$19,500 according to Indigenous Natural Products in Namibia (INP Market Bulletin. 2011. Ximenia. Indigenous Natural Products in Namibia 3: 2.). That does not seem like a lot of money but represents a lot of Ximenia plants! And for the 300 or so collectors it is a significant income. Most of the oil is shipped to France for the cosmetics industry.

Lytton John Musselman, Old Dominion University

MEETING REPORT

The VI International Weed Science Congress (IWSC) was held from 17 to 22 June 2012, at the New Century Grand Hotel Hangzhou, Hangzhou, China. The congress attracted 545 weed scientists from 51 countries. During this congress, a symposium on the ‘The state of art of parasitic plants research in the technological and biotechnological era’, organized by the International Parasitic Plant Society (IPPS) and the International Weed Science Society (IWSS), was held on Tuesday 19 June, and the oral presentations were grouped into 4 sessions; ecology and seed-bank, biology, and two management sessions. The number of abstracts submitted to this symposium was 34 and there were 18 oral (including 3 invited talks) and 16 poster presentations. The final programme and the proceedings will soon be available from the IWSC homepage (http://www.congress.com.cn/IWSC2012/).

Oral presentations:

Ecology and seedbank

Yongqing Ma (invited talk, China) - The parasitic weeds problems in China-past and present situation. A historical view of parasitic weed problems in China was given. Orobanche, Phelipanche and Cuscuta spp. are important weedy parasites in China but most of the attention and publications was focused on the herbal and medicinal traits of these plants and not on their damaging effect as parasitic weeds. In recent years up to 50% crop loss in sunflower production due to O. cumana infection was reported. Severe crop loss due to P. aegyptiaca in melon and tomato was also reported. Cuscuta was described in an old Chinese book (2200 years ago) but mainly as a medicinal herb. Since some water and methanol extracts of medicinal herbs could induce seed germination of Orobanche and Phelipanche spp., they could be used as trap crops.

Marc Cotter (Germany) - Predicting the potential future geographic distribution of Striga under climate and land use change. Using GIS-based modeling complemented by greenhouse and field studies, the present geographic distribution of Striga species mainly in Sub-Saharan
Africa was defined more precisely and its potential future expansion was predicted. Striga was found to occur as patches and may spread to areas of similar climate conditions like northern Australia in 2020. To improve reliability of the prediction, detailed data on Striga distribution, local climate factors, management practices, soil types, and vegetation need to be included.

Rosemary I. Ahom (Nigeria) - Severity of Striga hermonthica (Del.) Benth., parasitism on small-scale maize farms in Benue State, Nigeria. Extensive and intensive surveys were conducted on the extent of S. hermonthica infestation on maize in low-input farmers in Benue State. The farmers identified Striga properly but 20% of them indicated that Striga was a useful medicinal herb. Striga infested both local and improved varieties and the more severe damage being observed in the former. Although intercropping was adopted widely, most of the farmers in the Northern zone gave up cropping maize due to the pile. The resistance of submersion treatment in cattle slurry and in the compost survive. Similar trends could be observed in the high potential to disseminate them and infest farm fields. Cattle manure may contain weed seeds and thus has a high potential to disseminate and infest farm fields. Seeds of P. aegyptiaca and C. campestris were examined for their survival after passing through the cow digestive system, in farm liquid slurry in the reception pits in cattle sheds and in compost piles. P. aegyptiaca seeds could not survive the 3 day passage through the cow stomach while up to 36% of Cuscuta seeds could survive. Similar trends could be observed in the submersion treatment in cattle slurry and in the compost pile. The resistance of C. campestris seeds is probably due to its hard seed coat.

Yaakov Goldwasser (Israel) - Survival of Striga aegyptiaca in compost. Since the source of heavy P. aegyptiaca infestations in tomato greenhouses was suspected to be parasite seeds originating from compost used as fertilizer, the ability of P. aegyptiaca seeds to survive the composting procedure was investigated. P. aegyptiaca seeds lost germinability when they were kept at > 55°C for 4 hours or at 45–50°C for 15 hours. Therefore, proper composting procedure can prevent spreading of P. aegyptiaca infestation.

Tuvia Yaacoby (Israel) - Survival of the parasitic weed Phelipanche aegyptiaca in compost. Cattle manure may contain weed seeds and thus has a high potential to disseminate them and infest farm fields. Seeds of P. aegyptiaca and C. campestris were examined for their survival after passing through the cow digestive system, in farm liquid slurry in the reception pits in cattle sheds and in compost piles. P. aegyptiaca seeds could not survive the 3 day passage through the cow stomach while up to 36% of Cuscuta seeds could survive. Similar trends could be observed in the submersion treatment in cattle slurry and in the compost pile. The resistance of C. campestris seeds is probably due to its hard seed coat.

Biology

Linjian Jiang (China) - Interspecies protein trafficking endows the parasitic flowering plant dodder (Cuscuta spp.) with a host-specific herbicide tolerant phenotype. It was examined how dodder (C. pentagona = C. campestris) interacted with transgenic glufosinate tolerant hosts carrying the detoxifying enzyme phosphinotricin acetyl transferase (PAT) gene. The interspecies trafficking of PAT protein from hosts to the parasite was detected by ELISA, but not that of PAT mRNA by RT-PCR. This may provide a basis for novel approaches to parasitic weed control by preventing interspecies trafficking of targeted enzymes.

Airong Li (China) - Nutrient strategies of root hemiparasitic Pedicularis (Orobanchaceae). Both of the two sympatric root facultative hemiparasites Pedicularis rex and P. tricolor have been shown to have wide host ranges but different host preferences. Since they form symbiotic relationship with AM fungi, effects of host plants and AM fungi on growth of these hemiparasites and on phosphorus (P) acquisition were examined. Contribution of AM pathway in P acquisition was negligible in the absence of hosts but AM colonization affects host-derived P acquisition. In addition, AM colonization significantly reduced the number of haustoria (Li et al., 2012. Ann. Bot. 109: 1075-1080 – see Literature below). Inhibition of haustorium induction would be a promising target for both facultative root hemiparasites as well as obligate root parasites.

Kaori Yoneyama (Japan) - Seed germination stimulants for Phelipanche ramosa produced by oilseed rape. 2-Phenylethyl isothiocyanate (ITC) was found to be a major germination stimulant for P. ramosa produced by oilseed rape (Brassica napus). This non-mycotrophic plant also produced orobanchyl acetate and novel strigolactones but the amounts exuded were quite low as compared with mycotrophic plants. Then, 21 ITCs were examined for their germination stimulation activities on P. ramosa and O. minor. Among them, C_{7-12} alkyl-ITCs, and benzyl- and 2-phenylethyl-ITC but not phenyl-ITC were active P. ramosa germination stimulants. By contrast, these ITCs were totally inactive on O. minor seeds. ITCs are important germination stimulants for P. ramosa, and P. ramosa has developed a special seed germination strategy to parasitize oilseed rape.

Tal Shilo (Israel) - Glyphosate inhibits the translocation of macromolecules in the parasitic association between Egyptian broomrape (Phelipanche aegyptiaca) and tomato (Solanum lycopersicum). To examine a hypothesis that glyphosate restricts the translocation of phloem solutes from tomato (host) to P. aegyptiaca, a cross-bred transgenic tomato line expressing resistance to glyphosate and green fluorescent protein (GFP) was used. In the control (without glyphosate) treatment, a gradual increase in tubercle fluorescence was observed, indicating accumulation of GFP. By contrast, GFP accumulation in P. aegyptiaca tubercles was inhibited following glyphosate application. These results supported the hypothesis.
Zhi Wei Fan (China) - Induced host resistance as a control method for parasitic weeds. The efficacy of acibenzolar-S-methyl (ASM, BTH) an inducer of systemic acquired resistance (SAR), in soybean dodder (Cuscuta australis) control was examined. ASM at 100–200 mg/L significantly reduced dodder biomass without affecting growth of soybean. Accordingly induction of SAR by ASM when combined with other control methods would provide effective control strategy for soybean dodder.

Management

Murizio Vurro (invited talk, Italy) - Renewing the interest in biological control of parasitic weeds: use of strigolactone-degrading microorganisms. Extensive studies on microorganism-derived compounds which inhibit or stimulate germination of broomrape seeds, and thus could be used as biological agents for managing broomrapes, were summarized. A novel approach to biological control of root parasitic weeds has been proposed – using microorganisms which grow along the root system of the host plant, degrade strigolactones (SLs) rapidly, and thus prevent germination of parasite seeds. Distinct differences were observed among microorganisms, treatments and SLs used.

George D. Odhiambo (Kenya) – Interaction between phosphorus and desmodium on Striga hermonthica (Del.) Benth. incidence and maize yield in western Kenya. The influence of phosphorus (P) on effectiveness of two desmodium species (D. uncinatum and D. intorum) on S. hermonthica infestation and maize grain yield was investigated in western Kenya where the soil was P deficient. Application of P at 46 and 69 kg P ha⁻¹ significantly reduced Striga seedbank after three continuous cropping seasons. P fertilization of desmodium induced early emergence of Striga but later, as desmodium became matured, effectively suppressed Striga emergence. Farmers in P deficient areas are advised to fertilize their field with P to achieve optimum results.

Chinnusamy Chinnagounder (India) - Integrated management of witchweed (Striga asiatica L.) in early planted sugarcane (Saccharum officinarum L.) under red sandy loam soils of Tamil Nadu. Field experiments were carried out to evaluate herbicidal management techniques for controlling S. asiatica in sugarcane. An integrated management system including pre-emergence application of atrazine (1.0 kg ha⁻¹), subsequent hand-weeding of emerged Striga shoots, and post-emergence application of 2,4-D sodium salt (5g L⁻¹) + urea (20g L⁻¹) was proven to be effective in reducing S. asiatica infection in sugarcane under red sandy loam soils.

Hanan Eizenberg (invited talk, Israel) - The contribution of advanced technologies for broomrape (Orobanche and Phelipanche spp.) management. As broomrapes are highly sensitive to herbicides in the underground stages, information for their spatial distribution and quantification of developmental stages should contribute to management success. The temporal variation was quantified and broomrape parasitism was predicted by a thermal time model. Spatial variation of broomrape infestation within a field and between fields was estimated by the use of Geographical Information Systems (GIS) and other advanced technologies including in-situ observation using a minirhizotron for parasitic weed mapping, and field history data storage. This allows accurate mapping of the spatial distribution of broomrape in the field and use of these data for Site Specific Weed Management (SSWM). An example of a decision support system for rational management of Egyptian broomrape (P. aegyptiaca) was presented.

Amnon Cochavi (Israel) - A thermal-time model for predicting the parasitism of Phelipanche aegyptiaca in carrot (Daucus carota). A thermal-time model for predicting the initial parasitism of P. aegyptiaca in carrot was studied. Although the initial parasitism of P. aegyptiaca in tomato, O. minor in red clover and O. cumana in sunflower could be predicted by using a linear equation, this was not applicable to P. aegyptiaca in carrot. Instead, a beta function equation could robustly predict the tubercle growth stage (1-2 mm) which is highly sensitive to the herbicide glyphosate.

Evgenia Dor (Israel) - The resistance mechanism to imidazolinones herbicides of a novel tomato mutant HRT1 for broomrape management. A tomato mutant HRT1 resistant to imidazolinone herbicides was screened from an EMS treated tomato line M82. Acetolactate synthase (ALS) of HRT1 was sensitive to the herbicide glyphosate. The resistance mechanism to imidazolinones herbicides of a novel tomato mutant HRT1 for broomrape management. A tomato mutant HRT1 resistant to imidazolinone herbicides was screened from an EMS treated tomato line M82. Acetolactate synthase (ALS) of HRT1 was sensitive to the herbicide glyphosate. Four mutations and one of them resulted in the replacement of Ala194 to Val corresponding to Ala205 in the conserved region of Arabidopsis ALS. This mutation appeared to confer resistance to imidazolinone herbicides.

Satbir Punia (India) - Management of Phelipanche aegyptiaca in mustard and tomato in North-West India. Extensive field trials to establish feasible management of P. aegyptiaca in mustard and tomato in North-West India were conducted. Application of different kinds of organic and inorganic fertilizers and foliar
Poster presentations:

Ecology and seedbank
Wentao Yu (China) - Expressed sequence tag (EST) - intron length polymorphism (ILPs) as a molecular tool for the identification of *Cuscuta* species.

Biology
Yongqing Ma (China) - Induction of sunflower broomrape (*Orobanche cumana*) seed germination by some hybrid maize (*Zea mays* L.) varieties and their parents.
Wei Zhang (China) - Induction of sunflower broomrape (*Orobanche cumana*) seeds germination by different soybean (*Glycine max*) varieties.
Ana A. Stepowska (Poland) - Light and scanning electron microscopy studies on the *Phelipanche ramosa* L. Pomel development parasitizing tomato plants.
Dragana M. Bozic (Serbia) - Effect of salinity on seed germination of *Cuscuta campestris* Yunck.
Zhaohu Li (China) - Programmed cell death facilitates the dispersion of dodder.

Management
Gui-Lin Chen (China) - The resistance of different sunflowers to *Orobanche Cumana* Wallr. in seedling stage.
Hanan Eizenberg (Israel) - A multidisciplinary integrated approach for alleviating broomrape damage in Israeli agriculture - an emergency national project, 2010-2013.
Murali Arthanari Palanisamy (India) - Integrated *Cuscuta* management in legume fodder lucerne *Medicago sativa* and leafy vegetable (*Amaranthus viridis*).
Goran Malidza Serbia) - Broomrape (*Orobanche cumana*) control in tribenuron-tolerant sunflower.
Hanen Eizenberg (Israel) - Modelling approach for the prediction of parasitism dynamics in the root holoparasite broomrapes (*Orobanche* and *Phelipanche* spp.).

Germination stimulants
Hyun-il Kim (Korea, Japan) - Germination stimulating activity of strigolactone mixtures.
Takaya Kisugi (Japan) - Germination stimulants for root parasitic weeds produced by faba bean.
Takahito Nomura (Japan) - Analysis of endogenous strigolactones using plant cell cultures.
Xiaonan Xie (Japan) - Characterization of strigolactones produced by tobacco plant.
Pichit Khetkam (Thailand, Japan) - Strigolactones in root exudates from rice plants.

PRESS RELEASES

Global Food Security Center Hires Manager, Receives Grants (abridged)

The recently created Center for Global Food Security at Purdue University has hired a managing director and received grants totalling $10 million for work to improve crops in Africa and train the next generation of global food security experts.

Gary Burniske, who had been director of Mercy Corps operations in Bogotá, Colombia, since 2006, will run daily operations of the center at Discovery Park, a complex of organizations leading large-scale collaborative research on campus engaging faculty, students and industry in state, national and global partnerships and entrepreneurial education. Burniske's appointment comes at a time when the center, established in 2011, will begin work on two major projects that have received significant funding and align with two of the center's core mission areas - research and education:

A four-year, multidisciplinary research and development program on the control of the parasitic *Striga* weed, which infests sorghum and other crops in Africa, damaging or destroying them. The center received a $5 million grant from the Bill & Melinda Gates Foundation to further research and establish programs for a sustainable *Striga* control and institutional development effort in the African nations of Tanzania and Ethiopia.

The *Striga* research will build on the work of Gebisa Ejeta, the center's director and Distinguished Professor of Agronomy who received the World Food Prize in 2009 for developing sorghum varieties resistant to drought and *Striga* in his native Africa, where sorghum is a major crop. The new effort will focus on furthering knowledge of biological interactions between *Striga* and sorghum through research in chemistry, molecular genetics and crop improvement.

'In the previous research, we focused on controlling *Striga* through manipulation of resistance genes in the host plant,' Ejeta said. 'Now we will expand the research to explore the role of virulence genes in the pathogen to...
Mistletoe was controversial choice for Oklahoma flower

For 114 years, Oklahoma’s state flower was the mistletoe. But it was always a controversial choice. In February 1893, while the 2nd Territorial Legislature met in Guthrie, Rep. John A. Wimberly introduced the bill to designate mistletoe as the official floral emblem. The Women’s Congress of the Columbian World Exposition held in Chicago in 1893 had proposed that the state’s Women’s Congress of the Columbian World Exposition designate mistletoe as the official floral emblem. The Oklahoma Pavilion at the exposition, also known as the Chicago World’s Fair, promoted the territory to exposition visitors. Wimberly was the youngest member of the House of Representatives and it was he who, according to The Oklahoman on April 19, 1925, suggested ‘one of the most interesting traditions.’ ‘One day the question of the state flower was brought up. Everything from daisies to American Beauty roses was suggested. A representative from the southern part of the Territory wanted forget-me-nots. ‘That’s a good name for a state flower, and it’s a pretty flower too,’ he said. ‘Mr. Wimberly remembered how hard the previous winter had been and that when settlers had died and there were no flowers to put on the graves: ‘the only thing in the whole country with a bit of color was mistletoe.’ So it was adopted as the new territory’s floral emblem.

‘Years later when Oklahoma became a state, members of the constitutional convention carried the old territorial flower over into statehood, thus confirming what has since become one of Oklahoma’s oldest traditions.’

Every few years after it seemed someone would propose a change, it would be discussed and mistletoe would remain. The sweet pea, yucca and the cowboy rose (not a rose but a part of the mallow family), were among those proposed, but probably the most unusual was the alfalfa blossom.

Before we were even a state, in 1906, William H. Murray stated his preference for alfalfa in a letter to the editor of The Oklahoman: ‘Who, indeed, would desire to adopt for a state flower, a parasite? Let greater Oklahoma be known as the ‘Alfalfa State.’ In an editorial in The Oklahoman for June 17, 1912, the newspaper came out in support of alfalfa as the state flower: ‘Now that Oklahoma has become known as the marvelous alfalfa state, why not use the alfalfa blossom as the state flower?’ ‘The alfalfa blossoms are pretty; they enrich the scenery, added to the artistic part, alfalfa, is the mortgage lifter of Oklahoma. It is the crop which brings riches to the state; it is a crop which means more to the future than any other crop.’ ‘Alfalfa blossom — the state flower. It should be adopted’

The hardy little mistletoe stood firm from 1890 until 2004 when Gov. Brad Henry signed a bill into law making the Oklahoma Rose our official state flower. The mistletoe remains the state floral emblem.

Mary Philips for The Archivist
June 28, 2012

Global warming to spur invasive Australian ‘sleeper’ weeds

Global warming may shift the range of invasive weeds in Australia by hundreds of miles and awaken so-called ‘sleeper weeds,’ according to scientists with the Commonwealth Scientific and Industrial Research Organization (CSIRO). Plant experts warned at the end of March warned that resource managers need to be prepared for big changes in the coming decades. Invasive weeds already cost Australia more than $4 billion (Australian) per year either in control of lost production, and, like elsewhere, displace native habitat and species.

At a recent conference in Perth, CSIRO scientist Dr. John Scott, said, those cost estimates are only based on the damage caused by weeds known to be active in Australia. ‘Out there, throughout the nation, are many weed species lying low but with the potential to take off and add to the economic and social burden of weed control,’ Dr Scott said. ‘One critical unknown is what these lurking weeds will do under climate change. Will their distributions change? Will they spread north or south, east or west, and will these movements change them into full-blown pest species?’

A recent CSIRO report for the Australian Government’s Land and Water Australia looked at what effects climate changes anticipated for 2030 and 2070 might have on the distribution of 41 weeds that pose a threat to agriculture (‘sleeper’ species) and the natural environment (‘alert’
species). ‘We found that climate change will cause most of these weeds to shift south, with wet tropical species making the greatest move – over 1,000 kilometers,’ Scott said. ‘The regions most at threat from alert and sleeper weeds, both under the current climate and under climate change, are south east Australia, followed by the south west.’

Karroo thorn (Acacia karroo), rosewood (Tipuana tipu) and kochia (Bassia scoparia) were found to pose the greatest threat under climate change while white weeping broom (Retama raetam) and fringed dodder (Cuscuta suaveolens) were predicted to have the highest risk of establishing in new areas.

‘The predicted move south by both native and introduced plants would produce a ‘vacuum’ in northern Australia so, to prevent lurking species from invading, a new list of alert and sleeper weeds for this region needs to be developed,’ Dr Scott said. The report also found that while the area currently infested by the most widespread weeds will decrease under climate change, the area of high risk would still be large.

Bob Berwyn for Summit County Citizens Voice  
12 May 2012

CONGRATULATIONS


Dr Bikash Ray. Congratulations to Dr Bikash Ray on his promotion to the Pulses and Oilseeds Research Station, Berhampore, West Bengal India, where he will be exploring the availability of resistance to Orobanche aegyptiaca in rapeseed and mustard.

FORTHCOMING MEETING

12th World Congress on Parasitic Plants (WCPP) will be held on Monday July 15 to Friday July 19, 2013 in Sheffield, UK. The venue will be the Edge Conference facility at the University of Sheffield. Further details will be provided via the conference website which will be available from mid October 2012. An e-mail will be sent to everyone who receives Haustorium once the website is available.

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/](http://www.parasiticplants.org/)

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

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

For Dan Nickrent’s ‘The Parasitic Plant Connection’ see: [http://www.parasiticplants.siu.edu/](http://www.parasiticplants.siu.edu/)

For the Parasitic Plant Genome Project (PPGP) see: [http://ppgp.huck.psu.edu/](http://ppgp.huck.psu.edu/)

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

For information on the EWRS Working Group ‘Parasitic weeds’ see: [http://www.ewrs.org/parasitic_weeds.asp](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/](http://www.push-pull.net/)

For The Mistletoe Center (including a comprehensive Annotated Bibliography on mistletoes, up to 1995?) see: [http://www.rmrs.nau.edu/mistletoe/](http://www.rmrs.nau.edu/mistletoe/)

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


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/](http://www.aatf-africa.org/)

THANKS

As editors of Haustorium, Harro Bouwmeester and Chris Parker wish to thank Jim Westwood for his stalwart help, support and encouragement in the production of this newsletter over the past many years, particularly helping Chris with literature items that were beyond his comprehension. We may yet trouble him further but will try to leave him in peace.

[Describing the official Mexican standard ‘Specifications of quarantined weed species in Mexico’ listing 64 species in 21 families, including Orobancheaceae, Scrophulariaceae, Convolvulaceae.]


Alder, A., Jamil, M., Marzorati, M., Bruno, M., Vermathen, M., Bigler, P., Ghislia, S., Bouwmeester, H., Beyer, P. and Al-Babili, S. 2012. The path from β-carotene to carlactone, a strigolactone-like plant hormone. Science (Washington) 335(6074): 1348-1351. [A breakthrough paper on the elucidation of the strigolactone biosynthetic pathway. The catalytic function of DWARF27 was determined to be the isomerisation of trans to cis-β-carotene. The latter serves as substrate for CCD7 and the resulting apocarotenoid as substrate for CCD8. This 3-step pathway results in the formation of the highly surprising compound carlactone that already has the D-ring that is so characteristic for strigolactones and stimulates the germination of Striga and Orobanche/Phelipanche.]


Aly, R. 2012. Advanced technologies for parasitic weed control. Weed Science 60(2): 290-294. [Reviewing the need for alternative biotechnology-methods and describing the generation of transgenic tobacco plants expressing a cecropin peptide (sarcotoxin IA), under the control of the inducible HMG2 promoter and showing enhanced resistance to Phelipanche aegyptiaca. (see also Haustorium 59 pp 2-3).]


Amico, G.C., Vidal-Russell, R., García, M.A., and Nickrent D.L. 2012. Evolutionary history of the South American mistletoe Tripodanthus (Loranthaceae) using nuclear and chloroplast markers. Systematic. Botany 37: 218-225. [Results from a combined analysis of ITS and plastid genes showed the Tripodanthus flagellaris clade (including T. belmirensis) as sister to T. acutifolius which was composed of eastern and Andean clades.]


Atera, E.A., Itoh, K., Azuma, T. and Ishii, T. 2012. Farmers’ perspectives on the biotic constraint of Striga hermonthica and its control in western Kenya. Weed Biology and Management, 12: 53–62. [Striga hermonthica is regarded as a major constraint to maize, sorghum, and finger millet production and is increasing in the region. Local control measures include hand-pulling, crop rotation, and intercropping, but are not
widely adopted as there is no guarantee of a direct pay-off in increased crop yield. 


Badu-Apraku, B. and Oyekunle, M. 2012. Genetic analysis of grain yield and other traits of extra-early yellow maize inbreds and hybrid performance under contrasting environments. Field Crops Research 129: 99-110. [The available extra-early maize inbred lines are not only drought escaping but also possess genes for drought tolerance. TZEEI 79 × TZEEI 63 was the best extra-early hybrid under infestation by Striga hermonthica.]

Bandaranayake, P.C.G., Tomilov, A., Tomilova, N.B., Ngo, Q.A., Wickett, N., de Pamphilis, C.W. and Yoder, J.I. 2012. The TvPirin gene is necessary for haustorium development in the parasitic plant Triphysaria versicolor. Plant Physiology 158(2): 1046-1053. [Showing that TvPirin homologs are present in most flowering plants, and are not parasite-specific but are associated with the expression of a number of genes, some of which are involved in haustorium development.]


Barea, L.P. 2012. Habitat influences on nest-site selection by the Painted Honeyeater (Grantiella picta): do food resources matter? Emu - Austral Ornithology 112(1): 39-45. [Showing that nest-site selection by the Painted Honeyeaters was largely explained by abundance and proximity of (unspecified) mistletoe clumps and discussing the need to conserve mistletoes in the interest of conserving this declining bird species.]

Barrett, T.M., Latta, G., Hennon, P.E., Eskelson, B.N.I. and Temesgen, H. 2012. Host-parasite distributions under changing climate: Tsuga heterophylla and Arceuthobium tsugense in Alaska. Canadian Journal of Forest Research 42(4): 642-656. [Analysis of 1549 forested plots within a 14.5 million ha region of southeast Alaska suggest that climate currently limits the range of A. tsugense on Tsuga heterophylla and that certain models for climate change suggest up to 750% increase in distribution over the next century.]

Beavan, S.D. and Heckford, R.J. 2012. Discovery of the larva of Gynnidomorpha permixtana ([Denis & Schiffermüller], 1775) (Lepidoptera: Tortricidae) in the British Isles and a consideration of the species’ distribution there. Entomologist's Gazette 63(2): 69-83. [Larvae of G. permixtana found feeding in seed-capsules of Odontites vernus and Rhinanthus minor.]


Borokini, T.I. and Omotayo, F.O. 2012. Phytochemical and ethnombotanical study of some selected medicinal plants from Nigeria. Journal of Medicinal Plants Research 6(7): 1106-1118. [Identifying components in a range of plants, including Tapinanthus globiferus which tend to support their traditional medicinal uses.]

Braby, M.F. 2012. New larval food plants and biological notes for some butterflies (Lepidoptera: Papilionoidea) from the Australian Entomologist 39(2): 1106-1118. [Identifying components in a range of plants, including Tapinanthus globiferus which tend to support their traditional medicinal uses.]

(Krameriacae), an endangered medicinal plant from the Andean deserts. Journal of Arid Environments 83: 94-100. [K. lappacea is an endangered, hemiparastic, medicinal plant from the semi-deserts of Andean South America, and is being overexploited. The work in Peru confirms that it has a very wide host range. The need for conservation strategies and adequate management are stressed.]

Brown, A., Eatt, J., Done, C., Raymond, D. and Pattison, M. 2011. Indian sandalwood. Perfumer & Flavorist 36(22): 26-34. [A study of 90 Santalum album trees in Western Australia show good correlations between stem diameter, merchantable mass yield and heartwood yield. Together with observed oil yield from heartwood, the results contribute to the development of a predictive model.]


Chandrakasan, L. and Neelamgami, R. 2011. GC-MS analysis of Loranthus longiflorus Desr. (a hemi-parasite) bark harvested from two host trees. Journal of Pharmacy Research 4(9): 3072-3074. [Extracts from the bark of L. longiflorus (= Dendrophthoe falcata) growing on Casuaria equisetifolia showed anti-microbial and anti-cancer properties, while the same species growing on Ficus religiosa contained different components, without useful activity.]

Chandrakasan, L. and Neelamgami, R. 2011. In vitro studies on antioxidants and free radical scavenging activities in the extracts of Loranthus longiflorus Desr. bark samples obtained from two host trees. Journal of Phytology 3(12): 22-30. [Showing some small differences in the antioxidant constituents and free radical scavenging activities of extracts from L. longiflorus (= Dendrophthoe falcata) growing on the hosts Casuaria equisetifolia and Ficus religiosa.]

Chang FuYe, Li Yun and Wan JiFeng. 2012. (Function of Cistanche deserticola Y. C. Ma anti-aging, regimen and facial make-up.) (in Chinese) 2012. Chinese Archives of Traditional Chinese Medicine 30(3): 472-473. [It is believed that C. deserticola invigorates the kidney the function to achieve anti-aging, regimen and facial make-up purposes.’ (sic)]

Chen, C.Q., Han, S., Gao, J. and Yang, L.N. 2012. First report of ginseng (Panax ginseng) as a natural host of dodder (Cuscuta japonica) in China. Plant Disease 96(2): 297. [Reporting poor growth, chlorosis, wilting, and eventual death in a field of ginseng infested by C. japonica in Jilin Province, China.]

Chen JaoShien and Hsiao ShuChuan. 2011. Study on seed morphogenesis of Orobanchaceae in Taiwan. Taiwania 56(4): 267-278. [Embryos of Aeginetia indica were of solanad type, while in Boschniakia himalaica and Orobanche caerulescens they were of onagrad type. All seeds consisted of embryo, endosperm and testa.]


Daryaei, M.G. and Moghadam, E.S. 2012. Effects of mistletoe (Viscum album L.) on leaves and nutrients content of some host trees in hycarian forests (Iran). International Journal of Agriculture: Research and Review 2(3): 85-90. [Studies on V. album-infested hornbeam (Carpinus betulus) and alder (Alnus glutinosa) showed reduction of area and weight of host leaves, and lowered N, but increased K, Mn and Zn.]

de Camargo, N. F., Cruz, R.M.S., Ribeiro, J. F. and Vieira, E.M. 2011. (Frugivory and potential seed dispersal by the marsupial Gracilinanus agilis (Didelphidae: Didelphimorphia) in areas of Cerrado in central Brazil.) (in Portuguese) Acta Botanica Brasilia 25(3): 646-656. [Phoradendron perrottetii among the species eaten by G. agilis. Germination was not affected by passage through the gut.]

sanguinea (Balanophoraceae) among 33 species used to treat sexually transmitted disease.

Delaux, P.M., Xie, X., Timme, R.E., Puech-Pages, V., Dunand, C., Lecompte, E., Delwiche, C.F., Yoneyama, K., Bécard, G., Séjalon-Delmas, N. 2012 Origin of strigolactones in the green lineage. New Phytologist 195(4): 857-871. [The authors show that strigolactones and corresponding genes are present in primitive land plants and the Charales, freshwater algae, and control rhizoid elongation in the primitive plants. They suggest that the original biological function of strigolactones is not to facilitate mycorrhizal colonisation but plant development.]

Disadee, W., Mahidol, C., Sahakitpichan, P., Sithimonchai, S., Ruchirawat, S. and Kanchanapoom, T. 2012 Unprecedented furan-2-carbonyl C-glycosides and phenolic diglycosides from Scleropyrum pentandum. Phytochemistry 74: 115-122. [Five new compounds from S. pentandum (Santalaceae) identified and evaluated for their radical scavenging activities using both DPPH and ORAC assays.]

Dong LiNa, Li DeZhu and Wang Hong. 2011. (Species delimitation of Pterygiella (Orobanchaceae), a genus endemic to southwestern China on the basis of morphometric and molecular analyses.) (in Chinese) Plant Diversity and Resources 33(6): 581-594. [Revising the genus Pterygiella to include only three species, P. nigrescens, P. duclouxii, and P. cylindrica. P. suffruticosa is merged into P. cylindrica as a variety.]

Dongo, A., Leflon, M., Simier, P. and Delavault, P. 2012. Development of a high-throughput real-time quantitative PCR method to detect and quantify contaminating seeds of Phelipanche ramosa and Orobanche cumana in crop seed lots. Weed Research (Oxford) 52(1): 34-41. [The PCR (TaqMan) diagnostic method allowed rapid, high-throughput and accurate assessment of contamination of rapeseed and sunflower seeds with P. ramosa or O. cumana respectively, to the level of seeds per kg crop seed.]


Encheva, J. and Shindrova, P. 2011. Developing mutant sunflower lines (Helianthus annuus L.) through induced mutagenesis and study of their combining ability. Helia 34(54): 107-122. [Describing the use of ultrasound as a means of creating mutant lines of potential value in breeding for resistance to Orobanche cumana.]

Ephrath, J.E., Herschenhorn, J., Acharidi, G., Bringer, S. and Eizenberg, H. 2012. Use of logistic equation for detection of the initial parasitism phase of Egyptian broomrape (Phelipanche aegyptiaca) in tomato. Weed Science 60(1): 57-63. [From phytotron and greenhouse experiments at a range of temperatures, it was established that attachment of P. aegyptiaca on tomato began at 200 growing degree days (GDD) and maximum attachment was at 800 GDD.]

Estep, M.C., Gowda, B.S., Huang, K., Timko, M.P. and Bennetzen, J.L. 2012. Genomic characterization for parasitic weeds of the genus Striga by sample sequence analysis. Plant Genome, 5(1): 30-41. [Genomics analysis of Striga spp. shows that their DNA contains repetitive elements. The genome size varied from 615 Mb in S. asiatica to almost 2460 Mb in S. forbesii, suggesting a ploidy series. Phylogenetic analysis of chloroplast loci suggest that S. gesnerioides is more closely related to the grass-parasitising Striga spp. than expected.]

Fadini, R.F. and Lima, A.P. 2012. Fire and host abundance as determinants of the distribution of three congeneric and sympatric mistletoes in an Amazonian savanna. Biotropica 44(1): 27-34. [Prevalence of the relatively host-specific P. plagiophylus was negatively related to fire frequency, while for the more generalist P. biternatus and P. eucalyptifolius it was not.]

Feldman, T.S., Morsy, M.R. and Roossinck, M.J. 2012. Are communities of microbial symbionts more diverse than communities of macrobial hosts? Fungal Biology 116(4): 465-477. [Studies on Cuscuta cuspidata and its host Ambrosia psilostachya in grassland in Oklahoma, USA, revealed at least 25 fungal taxa, and 10% of these with detectable viruses. Several mycovirus types were shared among fungal taxa, indicating that mycoviruses may be less specialized than previously thought.]


Fischer, E., Lobin, W. and Mutke, J. 2011. Striga barthlottii (Orobanchaceae), a new parasitic species from Morocco. Willdenowia 41(1): 51-56. [Describing S. barthlottii, endemic to Morocco and specific to succulent Euphorbia species, previously mistaken for S. gesnerioides. The corolla lobes of S. barthlottii are rounded and about as long as wide while S. gesnerioides has long, narrow corolla lobes. The corolla of S. barthlottii is pale pink/whitish, while in S. gesnerioides it is usually violet. The stem of Striga barthlottii is typically unbranched, while typical S. gesnerioides is richly branched.]

Furuhashi, T., Fragner, L., Furuhashi, K., Valledor, L., Sun XiaoLiang and Weckwerth, W. 2012. Metabolite changes with induction of Cuscuta haustorium and translocation from host plants. Journal of Plant Interactions 7(1): 84-93. [Showing that metabolic components of Cuscuta japonica varied according to the host on which it was growing.]


Gaurav Sharma and Sundararaj, R 2011. Association of ants and honeydew producing sucking pests in Bangalore provenance of sandal (Santalum album Linn. Biological Forum 3(2): 62-64. [Different ants were found associated with five species of coccids on S. album.]

Gennini, J., Córtex, M.C., Guimarães Júnior, P.R. and Galetti, M. 2012. Mistletoes play different roles in a modular host-parasite network. Biotropica 44(2): 171-178. [Finding a wider host range for Psittacanthus spp. than for Phoradendron spp. in the Brazilian Pantanal, apparently associated with a wider range of bird dispersers.]


Goldwasser, Y., Miryamchik, H., Sibony, M. and Rubin, B. 2012. Detection of resistant chickpea (Cicer arietinum) genotypes to Cuscuta campestris (field dodder). Weed Research 52(2): 122-130. [Among 52 international varieties of chickpea and 11 local varieties tested in pot experiments in Israel, ICV 95333 and Hazera 4 showed very high resistance to primary parasitism from C. campestris, and moderate resistance to secondary parasitism (when the C. campestris had first established on a susceptible variety).]


Goto, R., Yamakoshi, G. and Matsuzawa, T. 2012. A novel brood-site pollination mutualism?: the root holoparasite Thonningia sanguinea (Balanophoraceae) and an
in florescence-feeding fly in the tropical rainforests of West Africa. Plant Species Biology 27(2): 164-169. [Female flies of the families Muscidae and Calliphoridae as well as Technomyrmex ants are shown to be responsible for pollination of T. sanguinea in Guinea. Morellia sp. (Muscidae) lays eggs on T. sanguinea, and the larvae feed only on the tissue of decaying male inflorescences.]


Grudnicki, M., Barbu, C. and Curelaru, C. 2010. The

Morellia

recording

inflorescences.

Willdenowia 41(2): 311-328. [Including a note recording Orobanche rosmarina on Rosmarinus officinalis in Tunisia.]

Grudnicki, M., Barbu, C. and Curelaru, C. 2010. The

influence of mistletoe (Viscum album spp. abietis) attack on fir tree (Abies alba) in Solca forest arrondissement Suceava District. Lucrări Științifice, Universitatea de Științe Agricole Sălaj Medicină' Veterinară” Ion Ionescu de la Brad”, Sălaj. Șeria Horticoltură’ 53(1): 585-590. [In Romania, V. album reduces wood quality of fir and increases vulnerability to strong winds, heavy snow falls, and the attacks of insects and fungus.]


Hajtò, T., Fodor, K., Perjési, P. and Németh, P. 2011. Difficulties and perspectives of immunomodulatory therapy with mistletoe lectins and standardized mistletoe extracts in evidence-based medicine. Evidence-based Complementary and Alternative Medicine 2011: Article ID 298972, 6 pp. [A review concluding that research on lectins from Viscum album needs new perspectives. The advantages and disadvantages of purified and biologically better defined lectin preparations are also discussed.]


Henderson, R.C., Sultan, A. and Robertson, A.W. 2010. Scale insect fauna (Hemiptera: Sternorrhyncha: Coccoidea) of New Zealand’s pygmy mistletoes (Korthalsella: Viscaceae) with description of three new species: Leucaspis albotecta, L. trilobata (Diaspididae) and Eriococcus korthalselli (Eriococcidae). Zootaxa 2644: 1-24. [Apart from the new species referred to in the title, 10 other scale insects are listed as occurring on Korthalsella clavata, K. lindsayi and K. salicornioides.]


Iwalokun, B.A., Oyenuga, A. O., Saibu, G. M. and Ayorinde, J. 2011. Analyses of cytotoxic and genotoxic potentials of Loranthus micranthus using the Allium cepa test. Current Research Journal of Biological Sciences 3(5): 459-467. [L. micranthus (= Illoystis micranthus) is used traditionally in Nigeria for the management of imuno-depressive illnesses such as diabetes mellitus, cancer and hypertension. This study showed that it is cytotoxic, mitodepressive and genotoxic to A. cepa roots and recommends caution in its use on humans.]
Jacob-Salcedo, M. del R. and 13 others. 2011. Antimicrobial and cytotoxic effects of Mexican medicinal plants. Natural Product Communications 6(12): 1925-1928. [Phoradendron longifolium, Psittacanthus calyculatus included in anti-microbial and anti-cancer tests. P. longiflorum showed potent antimicrobial effects, while P. serotinum showed activity against several human cancer lines.]
Jamil, M., Charnikhova, T., Houshyani, B., van Ast, A. and Bouwmeester, H.J. 2012. Genetic variation in Striga hermonthica parasitism in maize in response to soil fertility. Field Crops Research 134: 1-10. [In a combination of greenhouse/lab and field experiments the paper shows that in the greenhouse, increasing availability of N and P...
strongly reduce the exudation of strigolactones in maize which results in reduced infection with Striga. In the field the results are less consistent, particularly for P application, although N application did reduce Striga infection, probably because of physicochemical properties of the field soil.}


Jin AiHua, Piao Long, Yin XueZhe and Quan JiShu. 2012. (Anti-tumor effect of iridoid glucosides from Boschniakia rossica in H22-bearing mice.) (in Chinese) Zhongcaoyao = Chinese Traditional and Herbal Drugs 43(2): 332-335. [Glucosides from B. rossica had an inhibitory effect on the growth of transplanted H22 tumour, probably via the regulation of IL-2 and TNF-α expression as well as improvement of anti-oxidant capability of H22-bearing mice.]


Karpavičius, J. and Karpavičiūtė, J. 2011. (The features of European mistletoe (Viscum album L.) influence to the radial growth and state of Populus L. genus trees.) (in Lithuanian) Miškininkystė, 2(70): 49-57. [Showing that V. album infestation does not affect breast-height radial growth of P. nigra and P. canadensis but does seriously affect branch growth above points of attachment, resulting in death after 5-10 years and risk of fungal infection.]

Kawo, A.H., Suleiman, Z.A. and Yusha'u, M. 2011. Studies on the antibacterial activity and chemical constituents of Khaya senegalensis and Ximenia americana leaf extracts. African Journal of Microbiology Research 5(26): 4562-4568. [Extracts of X. americana failed to kill a range of wound bacteria, but chemical analysis showed the presence of potentially active compounds and suggested that higher doses could give results justifying their traditional use on wound infections in Nigeria.]

*Kester, M. 2012. Investigation trip to the United States of America to investigate golden dodder control options. Rural Industries Research and Development Corporation. https://rrird.infoservices.com.au/items/12-009 [Describing the control measures used to control Cuscuta campestris on lucerne in USA, including paraquat plus burning, flaming, sulphuric acid spraying, crop rotation into cereals, and the herbicides trifluralin
and pendimethalin. Also the use of glyphosate on a recently released Round-up-resistant lucerne.)

Kgosi, R.L., Zwanenburg, B., Mwakaboko, A.S. and Murdoch, A.J. 2012. Strigolactone analogues induce suicidal seed germination of *Striga* spp. in soil. Weed Research 52(3): 197-203. [Describing 5 new strigolactone analogues which were apparently active in soil of neutral pH. One derived from 1-tetralone was distinctly more active than the standard Nijmegen-1. The abstract refers to ‘no noticeable signs of decomposition’ but experimental evidence for this is not presented.]

Kim SanWoong, Yoo SeungHyeong, Lee HeeJae, Kim, K.D., Kim DoRim, Park SeongKyu and Chang MunSeog. 2012. *Cistanches herba* induces testis cytotoxicity in male mice. Bulletin of Environmental Contamination and Toxicology 88(1): 112-117. [At the doses used, extracts of *Cistanche* (presumably *C. deserticola* and/or *C. tubulosa*) induce cytotoxicity in the male reproductive system of mice, through inhibition of spermatogenesis, testicular damage, and limiting hormonal function.]

Koga, C., Mwenje, E. and Garwe, D. 2011. Response of tobacco cultivars to varying fertiliser levels in *Striga gesnerioides* infested soils in Zimbabwe. Agricultural Journal 6(6): 347-352. [Among 5 tobacco varieties, 2 landraces were severely damaged by *S. gesnerioides* while variety T66 was relatively tolerant. Parasite emergence, and damage to T66, was reduced by increasing N from 25 to 50 kg/ha.]


Kretzschmar, T., Kohlen, W., Sasse, J., Borghi, L., Schlegel, M., Bachelier, J.B., Reinhardt, D., Bours, R., Bouwmeester H.J. and Martinoia, E. 2012. A petunia ABC protein controls strigolactone dependent symbiotic signalling and branching. Nature 483: 341-346 [The authors cloned an ABC transporter from *Petunia* and show it is involved in strigolactone export. A mutant and transgenic knock-down plants secrete negligible amounts of strigolactones and have a (mild) branching phenotype. Intriguingly, the transporter seems to be expressed in specific cell-types in the root particularly, possibly in the hypodermal passage cells where AM fungi enter. Unexpectedly, the transporter is also expressed near the hypodermal passage cells where AM fungi enter.]

Kuitt, J. 2011. Reinstatement and expansion of the genus *Peristethium* Tiegh. (Loranthaceae). Annals of the Missouri Bot. Garden 98(4): 542-577. [Generic boundaries in the neotropical small-flowered loranthus are further redefined. The genus *Peristethium* Tiegh. is resurrected and now includes 15 mistletoe species, ten of which were formerly classified in *Struthanthus* and *Cladocolea*.]


spp. (Coleoptera: Meloidae), as pest herbivores of *Desmodium* legumes in western Kenya. International Journal of Pest Management 58(2): 165-174. [Hyleurus spp. reported to be important pests of *Desmodium* spp. by 75% of farmers in western Kenya (relevant to the use of *Desmodium* in control of *Striga* spp.). They also attack sweet potato.]

Lee MengShiou, Chen ChaoJung, Wan Lei, Koizumi, A., Chang WenTe, Yang MengJa, Lin WenHsin, Tsai FuuJen and Lin MingKuem. 2011. Quercetin is increased in heat-processed *Cuscuta campestris* seeds, which enhances the seed's anti-inflammatory and anti-proliferative activities. Process Biochemistry 46(12): 2248-2254. [Showing that the process of 'stir-baking' seeds of *C. campestris* increased levels of quercetin in the seeds and also increased anti-inflammatory and antiproliferative activities.]


Lemaitre, A.B., Troncoso, A.J. and Niemeyer, H.M. 2012. Host preference of a temperate mistletoe: disproportional infection on three co-occurring host species influenced by differential success. Austral Ecology 37(3): 339-345. [Discussing differences in the establishment of Tristerix verticillatus on hosts *Schinus montanus*, Fabiana imbricata and Berberis montana in Chile, depending on the seed source and behaviour of the bird disperser Mimus icenca.]


Li Jing, Deng ShuYong and Wang JianHong. 2011. (Extracting technology of total flavonoids from China Dodder by uni-form design method.) (in Chinese) Journal of Liaoning University of Traditional Chinese Medicine 13(11): 53-54. [The optimal conditions for extraction from *Cuscuta chinensis* include extraction time of 60 min, temperature 80°C, ratio between solid and fluid 1:100 and concentration of ethanol 52%.]

Li TeMao, Huang HsinChih, Su ChenMing, Ho TinYun, Wu ChiMing, Chen WenChi, Fong YiChin and Tang ChihHsin. 2012. *Cistanche deserticola* extract increases bone formation in osteoblasts. Journal of Pharmacy and Pharmacology 64(6): 897-907. [Concluding that *C. deserticola* extract may be a novel bone formation agent for the treatment of osteoporosis.]

Lin HuiBin, Lu Ning and Lin JianQiang. 2012. (Influence of different hosts on quality in *Semen Cuscutae*.) (in Chinese) China Journal of Traditional Chinese Medicine and Pharmacy 27(3): 625-627. [Analysing 19 different samples of *Semen Cuscutae* based on Cuscuta spp. including *C. chinensis* and concluding that content of flavonoids varies according to the host on which the Cuscuta has grown.]

Liu MeiJie and 12 others. 2012. Therapeutic effects of radix dipsaci, pyrola herb, and cynomorium songaricum on bone metabolism of ovariectomized rats. BMC Complementary and Alternative Medicine 12: 67. [Results support the use of *C. songaricum* extract as an alternative therapeutic agent for postmenopausal osteoporosis.]

Liu Wei, and 15 others. 2011. Strigolactone biosynthesis in *Medicago truncatula* and rice requires the symbiotic GRAS-type transcription factors NSP1 and NSP2. Plant Cell 23(10): 3853-3865. [NODULATION SIGNALING PATHWAY1 (NSP1) and NSP2 are transcription factors that are essential for rhizobium Nod factor-induced nodulation. Using transgenic lines, the authors show that NSP1 and NSP2 are indispensable for strigolactone (SL) biosynthesis in *Medicago truncatula* and in rice. The disturbed SL biosynthesis in nsp1 nsp2 mutant backgrounds correlates with reduced expression of DWARF27, a gene essential for SL biosynthesis.]

Lo Gullo, M.A., Glatzel, G., Devkota, M., Raimondo, F., Trifilò, P. and Richter, H. 2012. Mistletoes and mutant albinino shoots on woody plants as mineral nutrient traps. Annals of Botany 109(6): 1101-1109. [Showing that the higher levels of potassium, sulphur and zinc in Scirrula elata compared with those in the hosts Citrus sinensis and Nierium oleander (as in albino shoots of the latter) is due to the lack of phloem loading (and hence export from the foliage) rather than any selective transport via the haustorium.]


Lombardo, S., Longo, A. M. G., Io Monaco, A. and Maurimicale, G. 2012. The effect of soil solarization and fumigation on pests and yields in greenhouse tomatoes. Crop Protection 37: 59-64. [Solarization was ‘particularly valuable’ for the suppression of Orobanche ramosa in tomato.]

Lu TzuLi, Chuang JingYuan, Yang JaiSing, Chiu ShauTing, Hsiao NaiWan, Wu MeiChen, Wu ShihHsiung and Hsu ChingHsiang. 2011. Production of active nonglycosylated recombinant B-chain of type-2 ribosome-inactivating protein from *Viscum articulatum* and its biological effects on peripheral blood mononuclear cells. Evidence-based Complementary and Alternative Medicine 2011: Article ID 283747, 9 pp. [Type-2 ribosome-inactivating proteins are composed of a toxic A-chain and lectin-like B-chain. This study...
confirms the B-chain fragment as a potential immunomodulator.


Ma YongQing, Lang Ming, Dong ShuQi, Shui JunFeng and Zhao JunXin. 2012. Screening of some cotton varieties for allelopathic potential on clover broomrape germination. Agronomy Journal 104(3): 569-574. [Describing varied activity (allelopathic apparently meaning stimulatory) of exudates from 6 varieties of cotton (G. hirsutum and G. barbadense) on Orobanche minor germination and confirming that the activity of extracts from the stem correlated with those from roots.]


Mallory-Smith, C. and Colquhoun, J. 2012. Small broomrape (Orobanche minor) in Oregon and the 3 Rs: regulation, research, and reality. Weed Science 60(2) 277-282. [Infestations of O. minor occurred in 22 fields of red clover in 2001 and cytokinin regulations were imposed, but then relaxed in 2003. Control is achieved using false host crops and imazamox but some small populations still occur. (see also Haustorium 59 pp 2-3.)]

Mamontova, V.A. 2012. (New species of aphids of the family Lachnidae (Homoptera, Aphidoidea) from Ukraine and Russia.) Vestnik Zoologii 46(1): 37-44. [Describing Trama orobanches presumably occurring on Orobanche spp.?]


Matsuda, Y., Okochi, S., Katayama, T., Yamada, A. and Ito, S. 2011. Mycorrhizal fungi associated with Monotropastrum humile (Ericaceae) in central Japan. Mycorrhiza 21(6): 569-576. [Results indicate that the genetic diversity of mycorrhizal fungi of M. humile was highly specific to the Russulaceae, but diverse within that family, and that the fungi associated with M. humile differ from those associated with Monotropa uniflora.]

Matsu, Y. and Mimaki, Y. 2012. α-santalol derivatives from Santalum album and their cytotoxic activities. Phytochemistry 77: 304-311. [Seven derivatives identified including one with tumour-selective cytotoxicity.]

Mehrvarz, S.S., Shavvon, R.S. and Golmohammadi, N. 2012. Notes on the genus Viscum (Viscaceae) in Iran: a new combination based on morphological evidence. African Journal of Agricultural Research 7(11): 1694-1702. [Describing a new taxon: V. album subsp. golestanicum. The seed and fruit surfaces in V. album subsp. album are smooth while respectively wrinkled and furnished with platelet crystalloid ornamentations in the population from Golestan forest. Also the prophylls are two at the axils of each leaf in the former but four in the latter.]

Mei QiWen, Zhang XinHua and Ma GuoHua. 2011. (Influence of rhizospheric pH value of host on growth of Indian sandalwood and preference to host.) (in Chinese) Journal of Tropical and Subtropical Botany 19(6): 565-570. [Comparing the rhizospheric pH values of 61 hosts of S. album and concluding that the optimum for S. album is pH 5.5.]

Menkir, A., Franco, J., Adpoju, A. and Bossey, B. 2012. Evaluating consistency of resistance reactions of open-pollinated maize cultivars to Striga hermonthica (Del.) Benth under artificial infestation. Crop Science 52(3): 1051-1060. [Performance of 8 maize varieties compared over two sites over 5-6 years. ‘The resistant cultivars had low average ranks for grain yield under infestation (i.e. yielded well?), Striga damage rating, and emerged Striga plant count whereas the reverse was true for both the tolerant and susceptible cultivars. Cultivars with stable resistance, which can be used directly for cultivation or as sources of resistance alleles for breeding, were identified in this study.’]

and reduce poverty in maize farming households. But noting that uptake continues to be low.


Ndambi, B., Cadisch, G., Elzein, A. and Heller, A. 2012. Tissue specific reactions of sorghum roots to the mycorrhizal Fusarium oxysporum f. sp. strigae versus the pathogenic F. proliferatum. Biocontrol Science and Technology 22(2): 135-150. [Confirming that the safety of F. oxysporum f. sp. strigae (‘Foxy 2’) as a biocontrol agent against Striga spp. in sorghum is due to its lack of ability to penetrate and/or spread within the central stele, associated with enhanced levels of phenolics in the host tissue, which do not occur with F. proliferatum which freely penetrates and damages the sorghum.]

Nelson, D.C., Flematti, G.R., Ghislalberti, E.L., Dixon, K.W. and Smith, S.M. 2012. Regulation of seed germination and seedling growth by chemical signals from burning vegetation. Annual Review of Plant Biology 63: 107-130. [A general review of karrikins, a family of butenolides that are present in smoke. Karrikins stimulate seed germination and influence seedling growth. They are also active in species not normally associated with fire, and in Arabidopsis they require the F-box protein MAX2, which also controls responses to strigolactone hormones. The authors hypothesize that chemical similarity between karrikins and strigolactones provided the opportunity for plants to employ a common signal transduction pathway to respond to both types of compound.]

Njunge, J.T. and Mugo, J.M. 2011. Composition and
Nwankwo, N.E. and Cemaluk, E.A.C. 2011. Phytochemical
Oja, T. and Talve, T. 2012. Genetic diversity and
Omoigui, L.O., Ishiyaku, M.F., Ousmane, B., Gowda, B.S.
Osadebe, P.O., Abba, C.C. and Agbo, M.O. 2012. Antimotility effects of extracts and fractions of Eastern Nigeria mistletoe (Loranthus micranthus Linn). Asian Pacific Journal of Tropical Medicine 5(7): 556-560. [Inhibition in gastrointestinal transit was greater in extracts of ’L. micranthus’ (=Ileostylus micranthus) growing on Pentaclethra macrophylla than on 5 other host trees.]

Padrón Soroa, J.V. 2005. Regional regulated invasive plant species, an approach to the Cuban list. XVII Congreso de la Asociación Latinoamericana de Malezas (ALAM) I Congreso Iberoamerico de Ciencia de las Malezas, IV Congreso Nacional de Ciencia de Malezas, Matanzas, Cuba, 8 al 11 de noviembre del 2005:17-30. [Listing regulated invasive weeds for Mexico, Florida U.S.A., Cuba, Chile, Costa Rica and Brazil. Striga listed in all, Orobanche and Cuscuta in all but Brazil, and, for Cuba, Cassytha spp., Phoradendron robustissimum and Psittacanthus calycanthus.]

Parada Quintero, M. 2012. (Comparative analysis of seed rain of Gaiadendron punctatum (Ruiz & Pavón) G. Don (Loranthaceae) y Vernonia meridionalis Mutis ex L.f. (Theaceae) at Natural Municipal Park Rancheria (Boyacá), Colombia.) (in Spanish) Acta Biológica Colombiana 17(1): 159-172. [Recording that G. punctatum had the higher seed rain of 169/m²] Park WkanHa and Choi SangHoon. 2012. The effect of mistletoe, Viscum album coloratum, extract on innate immune response of Nile tilapia (Oreochromis niloticus). Fish & Shellfish Immunology 32(6): 1016-1021. [Suggesting that V. album extract enhances immunity in tilapia, increasing its resistance to bacterial infection by A. hydrophila.]

Parker, C. 2012. Parasitic weeds: a world challenge. Weed Science 60(2): 269-276. [The continuing problems from Striga, Orobanche, Cuscuta and mistletoes species are outlined, including their extent, the degrees of damage caused, and the difficulties in their control. While some are being successfully controlled by a range of techniques, others may even be spreading or intensifying. The challenges they present are emphasised. (see also Haustorium 59 pp 2-3).]

Pattanayak, S.P., Mazumder, P.M. and Sunita, P. 2012. Total phenolic content, flavonoid content and in vitro antioxidant activities of Dendrophthoe falcata (L.f.) Ettingsh. Research Journal of Medicinal Plant 6(2): 136-148. [Results indicate that D. falcata extracts can be a potential source of natural antioxidant with strong antiradical capacity.]


Piwowarczyk, R. 2012. A revision of distribution and the ecological description of Orobanche picridis (Orobanchaceae) at the NE limit of its geographical range from Poland and Ukraine. Acta Agrobotanica 65(1): 91-106. [Reporting two new localities for O. ramosa in Poland.]

Plakhine, D., Tadmor, Y., Ziadne, H. and Joel, D.M. 2012. Maternal tissue is involved in stimulant reception by seeds of the parasitic plant Orobanche. Annals of Botany 109(5): 979-986. [In an elegant experiment the authors show that the dependence on external chemical stimulation for seed germination in Orobanche seeds is genetically controlled. The genetic control is expressed in a seed tissue with maternal origin (presumably the perisperm that originates from the nucellus) and genetic variation for this trait exists in Orobanche species.]


Rahmawati, S.I. and Hayashi, N. 2012. The effects of batch reactor extraction on antioxidant activity from Scurraula atropurpurea. American Journal of Applied Sciences 9(3): 337-342. [Optimum ‘batch reactor extraction’ from Scurraula atropurpurea was with 30% ethanol at 100°C for 10 min. giving better results than a traditional extract (known as ‘benalu teh’ in Indonesia) in terms of yield, radical scavenging activities and total phenolics.]


Ramasony Harikrishnan, Chellam Balasundaram and Heo MoonSoo. 2012. Korean mistletoe enriched diet enhances innate immune response in kelp grouper, Epinephelus bruneus against Philasterides dicentrarchi. Veterinary Parasitology 183(1/2) 146-151. [Confirming that a 1 or 2% supplementation of the diet of the fish E. bruneus with extract of Viscum album positively enhances the innate immune response against infection by the histophagous ciliate P. dicentrarchi.]


Ramsfield, T.D., Shamoun, S.F. and van der Kamp, B.J. 2012. Histopathology of the endophytic system and aerial shoots of Arceuthobium americanum infected by Colletotrichum gloeosporioides. Botany 90(1): 43-49. [Failing to confirm that C. gloeosporioides infected the endophytic system of A. americanum parasitizing P. contorta var. latifolia, although xylem continuity between the aerial and endophytic systems was observed.]
QTLs together with the development of MAS techniques are promising approaches to rapidly improving crop resistance.


Rzedowski, J., & G. Calderón de R. 2011. Dos especies notables de Phoradendron. (Viscaceae) de la Mixteca Oaxacacuen-ña (MeXico), una nueva y una complementada. Acta Bot. Mexicana 96: 3-10. [Phoradendron perredactum is described and is one of the most remarkable members the genus owing to its isophasic development on Bursera. The description of P. oleae Kuijt is complemented with data on hosts and male plants.]


Satish, K., Gutema, Z., Grenier, C., Rich, P.J. and Ejeta, G. 2012. Molecular tagging and validation of microsatellite markers linked to the low germination stimulant gene (lgs) for Striga resistance in sorghum [Sorghum bicolor (L.) Moench], TAG Theoretical and Applied Genetics 124(6): 989-1003. [In a mapping study, the sorghum low germination stimulation locus was fine-mapped. This yields new, more reliable markers for marker-assisted selection of low germination inducing germplasm. With the sorghum genome sequence at hand a list of candidate genes for this trait could also be drafted.]


Scarpa, G.F. and Montani, M.C. 2011. Medical ethnobotany of "ligas" (Loranthaceae sensu lato) among indigenous and criollo people of Argentina. Dominigueza 27(2): 5-19. [Recording traditional medical uses of 8 species of Loranthaceae (s.l.), most relating to Struthanthus uraguensis, Tripodanthus acutifolius, Phoradendron bathyoryctum, and Ligaria cuneifolia. Suggesting further studies on S. uraguensis.]

Euphrasia (unspecified) among species that have proved valuable in treating conjunctivitis.

Schmidt, H.U. 2010. (Might the mistletoe (Viscum album spp. album) be a problem (not only) for the deciduous trees of the city of Berlin?) (in German) Julius-Kühn-Archiv 428: 362-363. [Discussing the possible reasons for increased incidence of V. album on a range of trees in Berlin, the difficulties of mechanical control, and suggesting the planting of trees which would be less susceptible.]


Seegmüller, S. 2012. (Scots pine mistletoe viscostox 1-PS-regional comparison and ecophysiological hints.) (in German) Allgemeine Forst- und Jagdzeitung 183(1/2): 33-43. [The concentration of viscostoxin in Viscum album ssp. austriacum on Pinus sylvestris across a range of sites in Germany and Switzerland varied widely with soil and climatic factors, being negatively correlated to host leaf nitrogen and sulfur status and highest under drought or irradiance stress.]


Şekeroglu, Z.A. and Şekeroglu, V. 2012. Effects of Viscum album L. extract and quercetin on methotrexate-induced cyto-genotoxicity in mouse bone-marrow cells. Mutation Research, Genetic Toxicology and Environmental Mutagenesis 746(1): 56-59. [Suggesting that V. album extract may play a role in reducing cyto-genotoxicity induced by anti-neoplastic drugs during cancer chemotherapy.]

Semerci, A., Kaya, Y., Sahin, I. and Citak, N. 2010. Determination of the performances and adoption levels of sunflower 33(53): 69-76. [Comparing the performance of sunflower varieties resistant to Orobanche cumana and those resistant to imidazolinone herbicide in Thrace, Turkey and concluding that highest and most economical yields are obtained with genetic resistance to the parasite.]

Seregin, A.P. 2011. (Pedicularis palustris and P. scepturn-carolinum (Orobanchaceae) in Vladimir Region and Middle Russia: dynamics and causes of extinction.) (in Russian) Botanicheskij Zhurnal 96(12) 1561-1574. [The rapid decrease of P. palustris and P. scepturn-carolinum over the past century is attributed to poor seed regeneration, genetic isolation of fragmented populations, change of land use, eutrophication, etc.]
钼膽, M. 2012. Changes of seasonal characters in populations of Melampyrum sylvaticum along an altitudinal gradient. Verhandlungen der Zoologisch-Botanischen Gesellschaft in Österreich 148/149: 137-144. [A study in Czech Republic concludes that seasonal characters are not sufficiently reliable to be the basis for sub-specific taxa.]


Su HueiJiun, Murata, J. and Hu JerMing. 2012. Morphology and phylogenetics of two holoparasitic plants, Balanophora japonica and Balanophora yakushimensis (Balanophoraceae), and their hosts in Taiwan and Japan. Journal of Plant Research 125(3): 317-326. [Refining the distinctions between B. japonica, B. yakushimensis, and B. laxiflora which form a well-supported clade within Balanophora. Also confirming that B. japonica parasitizes Symlocos spp., while B. yakushimensis parasitizes Distylium racemosum in Japan and Schima superba in Taiwan.]

Sultan, A., Johnston, P.R., Park, D. and Robertson, A.W. 2011. Two new pathogenic ascomycetes in Guignardia and Rosenscheldiella on New Zealand's pygmy mistletoes (Korthalsella: Viscaceae). Studies in Mycology 68: 237-247. [G. korthalsellea and R. korthalselleae are described from Korthalsella salicornioides, K. clavata and K. lindsayi. R. korthalselleae is a member of the Mycosphaerellaceae s.s.]

Sun ZhiYing, Song JingYuan, Yao Hui and Han JianPing. 2012. Molecular identification of Cistanches Herba and its adulterants based on nrITS2 sequence. Journal of Medicinal Plants Research 6(6): 1041-1045. [Confirming its adulterants based on nrITS2 sequence.]


Tan, S.A. 2010. Sunflower (Helianthus annus L.) researches in the Aegean Region of Turkey. Helia 33(53): 77-84. [Reviewing research in Turkey, including work on resistance to Orobanche cumana.]


Tibe, O., Pernthaner, A., Sutherland, I., Lesperance, L. and Harding, D.R.K. 2012. Condensed tannins from Botswanan forage plants are effective priming agents of γδ T cells in ruminants. Veterinary Immunology and Immunopathology 146(3/4): 237-244. [Extracts from Tapinanthus oleifolius showed moderate activity while effects of Viscum rotundifolium and V. verrucosum were minimal.]

Timko, M.P., Huang, K. and Lis, K.E. 2012. Host resistance and parasite virulence in Striga-host plant interactions: a shifting balance of power. Weed Science 60(2): 307-315. [‘The recent cloning and functional characterization of a race-specific R gene from cowpea encoding a canonical coiled-coil (CC)-nucleotide binding site (NBS)-leucine-rich repeat (LRR) type R-protein opens the door for further exploration of the mechanism of host resistance to S. gesnerioides in cowpea, and provides a focal point for studies aimed at uncovering the molecular and genetic factors underlying parasite virulence and host selection.’ (see also Haustorium 59 pp 2-3.)]


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biosynthetic mutant seeds but not of a signaling mutant. Hormone analysis revealed that strigolactones alleviate thermo-inhibition by modulating levels of the two plant hormones, GA and ABA. Hormone analysis in germinating Striga hermonthisca seeds suggests a common mechanism of hormonal regulation of germination in the parasitic and non-parasitic seeds.


Varga, I., Keresztes, B. and Poczai, P. 2012. (Data to the Hungarian insect fauna of European mistletoe (Viscum album)). (in Hungarian) Növényvédelem 48(4): 153-164. [Identifying 22 insect species on V. album, of which Cacopsylla visci, Cardalaspis visci, Hyspelecus visci, Pilatinus visciola, Ixapion variegatum, Liparthrum bartsihi, Synanthedon loranthi and Celypha woodiana are restricted to it. Those with some potential for biocontrol are the psyllid (Caco. visi), the mistletoe scale (Caru. visci), the mistletoe bug, H. visci, the clearing moth, S. loranthi and the bark beetle, L. bartsihi.]


Wan Jing, Xu Jun, Yang MingYan, Yang ZhenDe, Huang QingHe and Zhao ShuFang. 2012. (Effects of three plant extracts on growth and development of dodder and soybean and on protective enzymes of host.) (in Chinese) Genomics and Applied Biology 31(1): 63-69. [Describing apparently non-selective damage from extracts of Melia azedarach, Eucalyptus robusta and Sapium sebiferum on both Cuscuta chinensis and soybean.]

Wang Jing, Pu XiaoPeng, Cao ZhiZhong, Cao WenXia, Feng Xiao, Duan MingXuan and Qiu ZhiHe. 2011. (Study on grassland type and productivity of Tanzania pasture in Danchang County.) (in Chinese) Praticultural Science 28(3): 420-425. [One of the grassland types – a ‘sedge group’ - described from Gansu Province, China, includes Pedicularis spp.]

Wang ZhengHui, Wu BaoJun, Zhang XiangHong, Xu Min, Chang HuiMin, Lu XiaoYun and Ren XiaoYong. 2012. Purification of a polysaccharide from Boschniakia rossica and its synergistic antitumor effect combined with 5-fluorouracil. Carbohydrate Polymers 89(1): 31-35. [Results showed that the polysaccharide from B. rossica combined with 5-fluorouracil had synergistic effects on antitumour activity in tumour bearing mice.]

Waters, M.T., Nelson, D.C., Scaffidi, A., Flematti, G.R., Sun, Y.M.K., Dixon, K.W. and Smith, S.M. 2012. Specialisation within the DWARF14 protein family confers distinct responses to karrnikins and strigolactones in Arabidopsis. Development (Cambridge) 139(7): 1285-1295. [The Arabidopsis DWARF14 orthologue, AtD14, is – just as in rice - necessary for strigolactone response while the AtD14 parologue KARRIKIN INSENSITIVE 2 (KA12) is specifically required for responses to karrnikins, and not to strigolactones. The expression patterns of AtD14 and KA12 are consistent with the capacity to respond to either strigolactones or karrnikins at different stages of plant development. They propose that AtD14 and KA12 are necessary for the separate regulation of karrkin and strigolactone signalling by MAX2.]

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Wiens, D. and Calvin, C.L. 2011. Two epiparasitic species of *Phoradendron* (Viscaceae) from Honduras: one new and for the other a range extension and host determination. Aliso 29(2): 119-123. [Describing the new species, Phoradendron matthiasenii, growing as a hyper-parasite on *Psittacanthus angustifolius*. Ph. tikalense is also recorded from one site in Honduras, again hyper-parasitic on Ps. angustifolius.]

Wong ZinHua, Habsah Abdul Kadir and Ling SuiKiong. 2012. Bioassay-guided isolation of neuroprotective compounds from *Loranthus parasiticus* against H$_2$O$_2$-induced oxidative damage in NG108-15 cells. Journal of Ethnopharmacology 139(1): 256-264. [L. parasiticus (= Scyrrella parasitica) is used traditionally in China for treatment of schizophrenia, bone, brain, kidney, liver complaints and to treat ‘wind-damp’, and prevent miscarriage. Results of the study support the use of L. parasiticus in the treatment of neurological disorders where oxidative stress is implicated, thanks to the presence of proanthocyanidins.]

Wright, M.A.R., Ianni, M.D. and Costea, M. 2012. Diversity and evolution of pollen-ovule production in *Cuscuta* (dodders, Convolvulaceae) in relation to floral morphology. Plant Systematics and Evolution 298(2): 369-389. [The authors surveyed 128 species in each of the three subgenera looking at the ratio of pollen to ovules. While four ovules are present in the flowers of each species, the relationship of pollen to ovules varied widely among species. Outcrossing seems to be the rule with no species with established selfing.]


Xu Rong, Chen Jun, Zhou Feng, Yu Jing and Liu TongNing. 2011. (Study on rapid determination technique of *Cistanche deserticola* seed viability.) (in Chinese) Seed 30(5): 24-28. [Defining the optimum technique for determining seed viability in *C. deserticola* as pH 6.4 and TTC solution concentration of 0.3-1.0%, at 38°C.]

Yagi, S., Chrétiens, F., Duval, R.E., Fontany, S., Maldini, M., Piacenti, S., Henry, M., Chapleur, Y. and Laurain-Mattar, D. 2012. Antibacterial activity, cytotoxicity and chemical constituents of *Hydnora johannis* roots. South African Journal of Botany 78: 228-234. [In Sudan, the roots of *H. johannis* are traditionally used for the treatment of dysentery, diarrhoea, cholera and swelling tonsillitis, but the work reported here does not fully support these uses and suggests much more study is needed.]

Yamato, M., Yagame, T., Shimomura, N., Iwase, K., Takahashi, H., Ogura-Tsujita, Y. and Yukawa, T. 2011. Specific arbuscular mycorrhizal fungi associated with non-photosynthetic *Petrosavia sakuraii* (Petrosaviaceae). Mycorrhiza 21(7): 631-639. [Studies on *P. sakuraii* associated with Japanese cypress (*Chamaecyparis obtuse*) in Honshu, Japan, indicate that particular AM fungi are selected by *P. sakuraii* from diverse indigenous AM fungi. The same AM fungi can colonize both plant species, and photosynthates of *C. obtusa* may be supplied to *P. sakuraii* through a shared AM fungal mycelial network.]

Yang BeiFen and Li JunMin. 2012. Effect of parasitic plant *Cuscuta australis* R. Br. on growth of three invasive plants. Journal of Zhejiang University (Agriculture and Life Sciences) 38(2): 127-131. [Measuring the effects of *Cuscuta australis* on a range of parameters of *Erigeron annus*, *Chenopodium ambrosioides* and *Bidens pilosa*. Total biomass reduced by 47, 82 and 65% respectively and root:shoot ratio increased in all.]

[Confirming that polysaccharide from C. songaricum has anti-ulcer effect in rats.]

Yoneyama, K., Xie XiaoNan, Kim HyunIl, Kisugi, T., Nomura, T., Sekimoto, H., Yokota, T. and Yoneyama, K. 2012. How do nitrogen and phosphorus deficiencies affect strigolactone production and exudation? Planta 235(6): 1197-1207. [A detailed discussion on the varied responses of a range of crops to N and P deficiencies in promoting strigolactone exudation. Confirming that in general, P deficiency promotes strigolactone exudation in all species while N deficiency promotes exudation only in non-legumes (as legumes acquire N without AM fungi). And proposing explanations for the anomalous behaviour of tomato in which only P deficiency promotes exudation. Distinct reductions in shoot P levels were observed in the plants grown under N deficiency, except for tomato, in which shoot P level was increased by N starvation, suggesting that the P status of the shoot regulates SL exudation.]

Yoneyama, K., Xie XiaoNan, Kisugi, T., Nomura, T., Sekimoto, H., Yokota, T. and Yoneyama, K. 2011. Characterization of strigolactones exuded by Asteraceae plants. Plant Growth Regulation 65(3): 495-504. [Orobanchyl acetate and orobanchol were detected in root exudates from most of the 13 Asteraceae studied. 5-deoxystrigol and 7-hydroxyorobanchyl acetate were also detected in several.]


Zhang RenBo and Dou QuanLi. 2011. GC-MS analysis on volatile components in mucilage from Christosnita hookeri. Medicinal Plant 2(10): 35-36. [Mucilage from between calyx and corolla of C. hookeri contained potentially useful volatiles 2-(2-butoxyethoxy) ethanol and methyl n-butyl sulfoxide, but mainly polysaccharides.]


Zheng Wei, Tan XingQi, Guo Liangjun, Kong FeiFei, Lu Pin, Ni DongJie and Wang Ping. 2012. Chemical constituents from Monochasma savatieri. Chinese Journal of Natural Medicines 10(2): 102-104. [Identifying eight compounds from M. savatieri (Orobanchaceae).]


Zweifel, R., Bangerter, S., Rigling, A. and Sterck, F.J. 2012. Pine and mistletoes: how to live with a leak in the water flow and storage system? Journal of Experimental Botany 63(7): 2565-2578. [Studies in Switzerland show that stomata of Pinus sylvestris infested by Viscum album close but still suffer water loss and also suffer reduced photosynthesis. A tree with more than 10-20% of its total leaf area attributable to V. album is at the threshold of keeping a positive carbon balance. Increasing mistletoe abundance, due to increasing mean annual temperatures, is accelerating pine decline in many dry inner-Alpine valleys.]
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