



ISWS News Letter

A publication of Indian Society of Weed Science

October-December, 2010

Message from the President



A close-look reveals how the crop production is going to be tormented by weed communities in future. Exotic weeds have already grabbed the steering of the attack on crop. Changing climate is facilitating this aggression. In consequence, biodiversity, both of flora and fauna are going to be disturbed badly. Consumption of herbicides will be increased and so that the ability of weeds to develop resistance against herbicides. Question of herbicide contamination in food and ground water will come in. Altogether a messy situation is going to happen.

In this situation what would be the Society's role? How best can we make our Society relevant? What do you want this society to look like in future? Our members should come out with their candid inputs. It is up to the membership to shape the future of ISWS. I would like to see that ISWS in future will be playing the key role in solving weed problems making bridges among stake holders.

Jai Hind!

(Jay E. Varshney)

For decades, Dr. Adesina has been advancing the cause of practical, science-based agricultural practices, especially in his home continent of Africa. He is a world-class scholar, and through his eloquent speeches and published papers, he has been working to keep agricultural issues at the forefront. He also provides leadership through such avenues as the Alliance for a Green Revolution in Africa (AGRA) where he promotes cooperation and action to help farmers. He has the ability to work with governments, the private sector, and smallholder farmers.

As a Vice President of AGRA, Dr. Adesina helps set policy and advises former United Nations Secretary Kofi Annan, current Chairman of the Board of AGRA. Recently, Ban Ki-moon, Secretary General of the UN, appointed Dr. Adesina as one of the 17 world leaders who will consolidate global efforts toward achieving the U.N. Millennium Development Goals by 2015. Dr. Adesina will emphasize the push to reduce world hunger.

<http://www.theghanaianjournal.com>

News

Dr. Akin Adesina: Winner of Borlaug CAST Communication Award



Dr. Akin Adesina, Vice President for the Alliance for a Green Revolution in Africa (AGRA) is the winner of the Borlaug CAST Communication award for the year 2010. Dr. Adesina, a distinguished scientist, leader, and communicator who has been working passionately for Africa's Green Revolution.

Training on Recent advances in Weed Management

The Directorate organized an eight-day Model Training Course on 'Recent Advances in Weed management' from 11th October to 18 October 2010 with the main objective of the course was to impart the knowledge on improved weed management technologies to the personnel of state departments of agriculture and horticulture. Sh Rakesh Singh, Member of Parliament, Jabalpur inaugurated the function. The training was sponsored by Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India. Twenty three participants from various

states were exposed to the latest developments in the area of weed science research.



Training on "Weeds and use of weedicides" at Kolhapur

A training programme on "**Weeds and use of weedicides**" was conducted by ATMA, Kolhapur (Maharashtra) on 24th November, 2010. Mr. Umesh Patil, Dist. S.A.O. and Secretary, ATMA, Kolhapur and Mr. Prakash Kulkarni, an experienced life member of Indian Society of Weed Science (Jabalpur) from Pune organised this one-day programme with technical support and guidance of Dr. Jay G. Varshney, Director, DWSR, and President, ISWS, Jabalpur. Around 900 stake holders in agriculture, viz., progressive farmers, extension officials of Agriculture Department and Sugar factories, pesticide dealers and industrial officials participated this event.

In this programme, Dr. R.P. Dubey, Sr. Scientists and National Programme Coordinator, DWSR, Jabalpur was the Chief Guest, whose deliberation was on "Recent advances in weed science research in India". Dr. C.B. Gaikwad, Ex. HOD (Agronomy), MPKV, Rahuri presented on 'Weeds surveillance', Dr. Wani, present HOD (Agronomy) and Prof. Prashant Bodake, MPKV, Rahuri presented on "Weedicide recommendations on various crops". A training manual on "Weeds and Use of Weedicide" was released by Dr. Ghag, Joint Director of Agriculture, Kolhapur Division, Maharashtra.

Research Notes

Allelopathic potency of crop residues

Scientists of Tygerhoek Research Farm, South Africa assessed the allelopathic potency of the residues of some crop and weeds. The rotational plant species planted into the plant residues consisted of barley (*Hordeum vulgare* L. variety Clipper), canola (*Brassica napus* L. variety ATR Hyden), wheat (*Triticum aestivum* variety SST 88), lupines (*Lupinus albus* L. variety Tanjil), alfalfa (*Medicago sativa* L. variety SA standard), medic (*Medicago truncatula* Gaertn. variety Parabinga), and ryegrass (*Lolium multiflorum* Lam. variety Energa). These crops are used in crop

rotation in this grain production area. Six plant species were used in the second experiment, planted at 90° angle across the first after the latter was harvested, namely barley, wheat (variety SST 027), lupines (variety Tanjil and variety Quilnock), ryegrass and ryegrass weed type (*L. multiflorum* × *perenne*). Broadleaf weeds comprised 88.5% of total weed spectrum. Medic suppressed ryegrass weed type while lupines suppressed grass weeds. An acceptable production practice using allelopathic crops for weed control will likely consist of combining continued limited amounts of herbicides with leguminous crop residues.

Agronomy Journal: 102 (6)1593-1600

Thai medicinal plants - source of allelochemicals

P. Piyatida and H. Kato-Noguchi of Kagawa University, Japan have evaluated the allelopathic activity of eleven Thai medicinal plants on seedling growth of five test plant species. These eleven species namely *Rhinacanthus nasutus* (L.) Kurz, *Clitoria ternatea* L., *Mammea siamensis* Kosterm., *Centella asiatica* (L.) Urban, *Thunbergia laurifolia* Linn., *Piper sarmentosum* Roxb., *Hibiscus sabdariffa* L., *Moringa oleifera* Lam., *Tinospora tuberculata* Beume, *Tiliacora triandra* (Colebr.) Diels. and *Amomum krervanh* Pierre ex. Gagnep. were evaluated their allelopathic potentials against cress (*Lepidium sativum* L.), lettuce (*Lactuca sativa* L.), alfalfa (*Medicago sativa* L.), timothy (*Phleum pratense* L.) and crabgrass (*Digitaria sanguinalis* L.). The aqueous methanol extracts of these medicinal plants had inhibitory activity on all test plant species with different inhibition values. The aqueous methanol extracts of *H. sabdariffa* showed the highest inhibitory effect on cress and alfalfa seedlings. The extract obtained from *P. sarmentosum*, *R. nasutus* and *T. tuberculata* possessed the highest allelopathic potential on lettuce, timothy and crabgrass seedlings, respectively. Inhibitory effects of these medicinal plants were dependent on test plant species. The variation may result, in part, from the different test plant species with different sensitivity to allelochemicals. However, four medicinal plants *H. sabdariffa*, *P. sarmentosum*, *R. nasutus* and *T. tuberculata* possessed high allelopathic potential and may be good candidates for isolation and identification of allelochemicals.

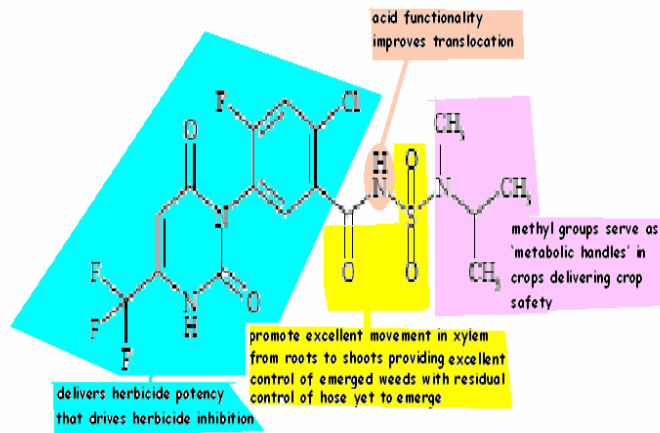
Asian Journal of Plant Sciences (2010): 9 (8) 486-491

Know the molecule: Saflufenacil

BASF has developed Saflufenacil as a new herbicide of the pyrimidinedione chemical class for preplant burndown and selective preemergence dicot weed control in multiple crops, including corn. It is a new PPO-inhibiting, peroxidizing herbicide.

Saflufenacil has low acute toxicity via the oral, dermal and inhalation routes of exposure. It is

slightly irritating to the eye. It is neither a dermal irritant nor sensitizer.



N'-{2-chloro-4-fluoro-5-[1,2,3,6-tetrahydro-3-methyl-2,6-dioxo-4-trifluoromethyl) pyrimidin-1-yl]benzoyl}-*N*-isopropyl-*N*-methylsulfamide

www.agproducts.basf.com

Allelopathic effect of rice hull extracts

In a research in Shahid Chamran University, Ahvaz, Iran, the allelopathy effect of rice hull extracts (*Oryza sativa* L.) on *Silybum marianum* and *Echinochloa crus-galli* was investigated. The water extracts from hulls of 13 cultivated rice cultivars (*Oryza sativa* L.) and then used to show their phytotoxicity potential on germination and seedling growth of *Silybum marianum* and *Echinochloa crus-galli*. Dr. Seyyednejad and co-workers observed that the water hull extracts of Kadus and Chapar sar 3 had the highest inhibitory effect on dry weight and root length of *Silybum marianum*, respectively. It seemed that not only did the hull extracts have inhibitory effect on germination of *Silybum marianum*, but also had stimulatory effects on stem length. On the other hand, there was no significant effect on root and stem length and germination of *Echinochloa crus-galli*. Meanwhile, the extract of Shafagh induced the highest increase in the dry weight of *Echinochloa crus-galli*. Therefore, it was shown that the various rice cultivars had different effects on the plants, and it may be possible to breed rice cultivars to gain greater allelopathic potential.

African Journal of Agricultural Research (2010): 5(16) 2222-2226

***Eucalyptus*- source of allelochemicals**

Eucalyptus has allelochemicals effect on the seed germination and growth of seedlings of *Acroptilon repens*, *Plantago lanceolata* and *Portulaca oleracea*. Alireza Dadkhah and Ali Mohammad Asaadi conducted a petri dish assay was carried out to study allelopathic potential of foliar aqueous extract of *Eucalyptus camaldulensis* on germination and seedling growth of some weeds including *Acroptilon repens*, *Plantago lanceolata* and *Portulaca oleracea*. Seed germination, rate of germination, root and shoot length of weeds exhibited different degree of inhibition according to the concentration of the aqueous extract. Maximum inhibitions on germination percentage, rate of germination and seedling growth were recorded when using the highest concentration of the aqueous extract (20 g L⁻¹) of *Eucalyptus*.

Seed and rate germination of *Portulaca* weed were not affected by aqueous extract of *Eucalyptus camaldulensis*. However, seed germination and germination rate of *Acroptilon repens* and *Plantago lanceolata* were severely affected by aqueous extract of *Eucalyptus camaldulensis*. Aqueous extract of *Eucalyptus camaldulensis* affected seedling growth of all weeds even *Portulaca oleracea* so that root and shoot length of *Portulaca oleracea* decreased by 83.3 and 68% at high aqueous extract concentration (20 g L⁻¹), respectively compared to control. Root length was more affected than other parameters by aqueous extract of *Eucalyptus camaldulensis*.

Research Journal of Biological Sciences (2010):5(6)430-434

Know your weed seeds

V.S.G.R. Naidu

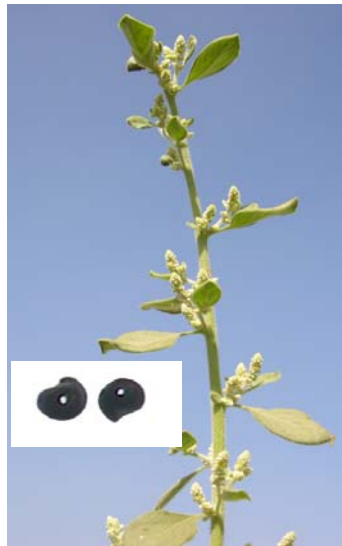
Positive identification of pests, including weeds, is the first step in a sound integrated pest management program. Knowledge of plant morphological features, such as leaf and stem shape, flower type and color, and the presence of hairs make identification relatively easy. However, identifying a weed by the features of its seed is a daunting task because of the relatively small size of seed, the change in surface characteristics caused by various processes and color variation within the same species. Efforts have been made to describe the characters of seeds of important weeds. Some of the weed seed characters along with the seed and plant images are given below:

Echinops echinatus



Achenes 4 mm long, slender, obconical, glabrous, tipped by short bristly deciduous, yellow pappus forming a cup over achene.

Aerva lanata



Seeds less than 0.5 mm, bean-shaped, black and shining

Biophytum sensitivum



Seeds minute, (less than 0.5 mm), Light to dark brown, surface with obliquely transverse tubercled idges.

Evolvulus alsinoides



Capsule globose, 0.3-0.4 cm long, glabrous; Seeds usually 4, pale brown to black, ovoid-1.5-1.7 mm long,

Murdannia nudiflora



Seeds trigonous, 2-4 mm, pale brown, shallowly pitted.

Zornia gibbosa



Pods jointed, muriculate with hooked, retrorsely hairy bristles. Seeds 3-5 mm long, kidney shaped, yellowish brown with dark brown spots

Coix lacryma-jobi



Fruit is a pseudocarp, 0.6-1.2 cm long, globose-broadly ovoid, white to slightly bluish white, hard and polished

Coix barbata



Seed (caryopsis) is 5-7 mm long, yellowish brown, resembles wheat grain.

Evolvulus nummularius



Seeds 2-4 mm, brown, ovoid-triangular, minutely tuberculate.

Cocculus hirsutus



Fruit (drupe), compressed, pea sized, purplish black. 4-8 mm long, 4-5 mm broad. Endocarp annular or ribbed with a prominent dorsal crest, perforated.

Future Events

The 6th World Congress of Allelopathy

December 15-19, 2011, Guangzhou

Venue: Hotel Canton, Guangzhou, China

Organisers: International Allelopathy Society and South China Agricultural University

Deadlines:

March 15, 2011 Deadline for submission of abstract for the 6th WCA

April 10, 2011 Reply to authors regarding acceptance of the paper for oral presentation and

a possible inclusion in a special issue of a journal publication or conference proceedings or for a poster presentation

June 15, 2011 Deadline for submission of full paper

August 30, 2011 Deadline for early registration

Proposed Symposia:

1. Allelopathy: methodology and modeling
2. Allelopathy in agriculture
3. Allelopathy in horticulture and forestry
4. Allelopathy and invasive plants
5. Physiology, biochemistry, molecular biology and genetics of allelopathy
6. Allelopathy and plant – insect interactions
7. Allelopathy and plant – microbial interactions
8. Allelopathy and rhizosphere ecology
9. Allelopathy in aquatic system

10. Chemistry of allelochemicals
11. Environmental fate of allelochemicals

<http://www.international-allelopathy-society.org>

THE 6TH INTERNATIONAL WEED SCIENCE CONGRESS

The 6th International Weed Science Congress will be held in Hangzhou, China from June 17-22, 2012 jointly organized by The Institute of Plant Protection (CAAS), The China Society of Plant Protection and Weed Science Society of China (CSPP).

The theme of the Congress will be '**Dynamic weeds, diverse solutions**'.

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The ISWS Newsletter is an electronic quarterly publication to foster better communication and give information to our members and others in the country interested in weed science. Information for publication in the ISWS Newsletter may be sent to the Editor at the following address:

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