

# HAUSTORIUM

## *Parasitic Plants Newsletter*

Official Organ of the International Parasitic  
Seed Plant Research Group



November 1995 ..... Number 31

● ● SIXTH INTERNATIONAL PARASITIC  
WEED SYMPOSIUM  
CORDOBA, SPAIN 16-18 APRIL 1996  
↑ FINAL ANNOUNCEMENT ↑

The organizing committee of the symposium met in Cordoba in October to review papers and plan the sessions. Over 140 papers have been accepted for the symposium. There will be workshops on biocontrol; molecular techniques in parasitic plant research; and integrated management of parasitic weeds. The venue of the meeting is in a former palace that has been converted to a modern conference center retaining the charming ambience of ancient Spain. Early registration is advised especially to garner hotel rooms at a specially reduced rate. For further information contact:

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● **BOOK REVIEW: EUROPEAN  
BROOMRAPES**

Orobanche. The European Species. A Field Guide. 1. Central and Northern Europe. C. A. J. Kreutz, 1995. 159 pp. ISBN 90-74508-05-7. Price Deutchmark 59.00 (excluding postage). Available from Natuurhistorisch Genootschap in Limburg, Postbus 882, NL-6200 AW Maastricht, The Netherlands.

This beautiful volume, A4 in format and bilingual throughout in English and German, covers 26 Orobanche species. Each species has a page devoted to description plus comments on flowering time, habitat,

hosts, distribution and nomenclature, a page with excellent line drawings of the complete flower and a cutaway to show stamens and ovary, combined with a distribution map covering all of Europe and some of W. Asia and N. Africa. There are also 2 pages of superb colour photographs, one full-page of the whole plant and four quarter-pages showing more detail. In addition there is an extended introductory section with general observations on systematics, taxonomy, nomenclature, biology, ecology, host range, agricultural significance and some brief comment (a little inadequate) on control. There is an illustrated glossary of the important morphological features (in Dutch as well as English and German) and a diagnostic key to the species. Finally there are a substantial bibliography and indices to the species as known in Latin, English, German and Dutch.

Arrangement of species is mainly alphabetical by specific name, but the sections Trionychon (4 spp.) and Orobanche (22 spp.) are treated separately, so at first it is puzzling not to find *O. ramosa* after *O. picridis*. Orobanche *cumana* is treated separately from *O. cernua* but there is no excessive tendency to splitting and with the benefit of the plates it is possible to be persuaded that most, if not all the taxa dealt with deserve specific status. A second volume dealing with species of Southern Europe is planned.

The author and publishers are to be congratulated on the production of a volume well worthy to join Johann Visser's 'South African Parasitic Flowering Plants' on the shelves of all dedicated students of parasitic angiosperms.

C. Parker

## ● OBITUARY: W. G. H. EDWARDS

We are sad to record the death earlier this year of Professor Bill Edwards who was instrumental in setting up the very first International Parasitic Weed Symposium in Malta in 1973. At that time he was Professor of Chemistry in the Royal University of Malta and responsible for a British Overseas Development-funded project on *Orobanche crenata* in fababeans. One of the main objectives was to identify the germination stimulant from the host. This proved and continues to prove elusive, but the project threw valuable light on other aspects of the biology and control of the weed while related work in UK led to the discovery of the selectivity of glyphosate against *O. crenata* in fababean. After leaving Malta in 1975 he became Visiting Professor at Royal Holloway College, London University, before joining the Gezira University at Wad Medani in Sudan as Professor of Chemistry from 1979 to 1984. Here he continued to encourage and contribute to local work on parasitic weeds, notably *Striga hermonthica*, up to his retirement in 1984. Those who knew him will remember his warm geniality and infectious enthusiasm.

## ● SCROPHULARIACEAE ON THE INTERNET!

The British Museum of Natural History has a Gopher site for Scrophulariaceae. The address is (<gopher://157.140.2.2:70/00/botany/scroph>) or via the web (<http://www.nhm.ac.uk/>). There are plans to expand coverage of different aspects of the family. For further information, contact Dr David Sutton, email address: [d.sutton@nhm.ac.uk](mailto:d.sutton@nhm.ac.uk).

## ● WHITEVILLE PARASITE LAB CLOSED

For almost four decades, the US Department of Agriculture witchweed laboratory near Whiteville, North Carolina was a leading facility in the development of novel control methods for parasitic weeds. In addition, a great deal of basic research was either done at Whiteville or in collaborative efforts with universities and government agencies around the world. During the summer of 1995 the witchweed laboratory was permanently closed. The number of employees was drastically reduced and the skeleton staff moved to Oxford, North Carolina. The new address is: USDA/APHIS/PPQ, Oxford Plant Protection Center, 901 Hillsboro Street, Oxford, North Carolina, 27565. Fax number: 919 693 3870.

## ● BRISTOL STRIGA WORKSHOP

The EU-sponsored Workshop, 30 May-2 June 1995, was the first to concentrate solely on the mechanisms of infection of *Striga* and *Orobanche* and crop resistance. It also aimed to assess the relevance of such studies to the development of control measures. The conference was organised by John Bailey and Athene Lane, with assistance from Drs Kroschel, Pieterse, Salle and Prof. Zwanenburg. The Workshop was held in the Victorian mansion of Burwalls which overlooks the Bristol suspension bridge. The setting, beautiful grounds, and congenial staff undeniably added to the success of the meeting.

There were over 40 participants who all presented papers or posters which reported many new advances. The chemistry of germination stimulants is now well understood for *Striga* (but not *Orobanche*), and related chemical analogues have been synthesized (Butler, Zwanenburg). The description of the infection process is well established for both parasite genera. Emphasis was placed on the early events that determine the attachment of parasite seedlings to host roots and the role of primary and secondary parasite haustoria (Heide-Jorgensen, Riopel, Reiss).

Examples of highly effective resistance to *Striga* have been identified in cowpea, sorghum and upland rice (Ejeta, Lane, Riches, Singh). Several mechanisms of resistance were described for *Orobanche* and *Striga* species (Dorr, Joel, Lane, Timko, Verkleij). It was notable that resistance was expressed in many different crops and their relatives after an initially successful infection. The expression of resistance was described in some detail, but the actual mechanisms of resistance are unknown. The only exceptions are the low-stimulant sorghums (Butler) and the phytoalexins associated with the resistance of sunflowers to *Orobanche* (Wegmann).

Parasitic plants show great variability, and it was agreed that deployment of a new resistant variety will only be successful if there is an understanding of variability in parasite pathogenicity. However, apart from *S. hermonthica* and *S. gesnerioides* there has been no detailed characterization of parasite variability. The existence of variety-specific races is now well documented in *S. gesnerioides* and their distribution in W. Africa has been mapped (Lane). Some molecular analyses were reported for *S. hermonthica* (Koya-

ma, Hess), and mentioned in discussion for *O. cernua* and *O. ramosa* (Joel).

Another important new aspect were the molecular initiatives. One report was that the infection of maize roots by *S. hermonthica* suppresses the normal host stress response genes (Mayer). The expression of genes in tobacco plants was also shown to be modulated by parasite infection (Thalouarn). Genes were activated during formation of *S. asiatica* haustoria, and pathogenesis related proteins were expressed during infection of host roots by Orobanche (Timko, Joel). The SRN39 gene for the low-stimulant type of resistance in sorghum has been mapped through analysis of recombinant inbred lines developed at Purdue University (Ejeta).

In addition, a visit to Long Ashton Research Station by the Workshop participants provided an opportunity to view the Institute Strigu research programme and an excellent forum for informal discussions. Participants saw examples of resistance of cereals and sorghum to *Striga* and the methods used for assessing the nature of resistance and the extent of variability of *Striga* species.

J. A. Lane, IACR-Long Ashton Research Station, Department of Agricultural Sciences, University of Bristol, Long Ashton, Bristol, BS18 9AF, UK.

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### ● LITERATURE

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- and growth in temperate Australia. *Forest Ecology and Management* **70**: 55-65. (Thorough pruning of parasite from individual trees in matched pairs resulted in 22-24% increase in foliage and 49-55% increase in radial growth after 33 months.)
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