

# **International Symposium on Broomrape (*Orobanche spp.*) in Sunflower**

**By**

**Republic of Türkiye**

**Ministry of Agriculture and Rural Affairs**

**The General Directorate of Agricultural  
Research**

**Trakya Agricultural Research Institute  
Edirne, Türkiye**

**Collaboration with**

**Turkish Plant Breeders Association**

**International Sunflower Association**

**FAO (Food and Agriculture Organization)**

**November 30 – December 3, 2008**

**Fame Residence Hotel, Antalya, Turkey**

**This symposium jointly organized by**

**Republic of Turkey**

**Ministry of Agriculture and Rural Affairs**

**The General Directorate of Agricultural Research**

**Trakya Agricultural Research Institute – Edirne**

**Turkish Plant Breeders Association**

**International Sunflower Association**

**FAO (Food and Agriculture Organization)**

**This symposium jointly sponsored by**

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## **WELCOME NOTES**

Dear Participants,

As the Chair for the **International Symposium of Broomrape (*Orobanche spp.*) in Sunflower** in Antalya, Turkey, I'd like to welcome you and to give some information on this event. Our symposium brings together a variety of sunflower researchers from government, commercial, and academic organizations worldwide to foster cooperation on sunflower and broomrape and to promote information sharing among researchers largely. The aim of our international symposium is present the newest research results and research goals, analyze present conditions and perspectives in Broomrape biology, plant host relationships and resistance breeding, chemical and other control methods in sunflower. As always, we also extend a warm welcome to all our colleagues in the sunflower research and industry who share our interest in improving information to increase the income of sunflower producers.

As organizers, we also would like to discuss in new project ideas on EU Research Framework and also on other international organizations. If you or your organization are interested in joining these discussions and taking part in preparing new projects, this will be great opportunity for further developments for sunflower research and these efforts will contribute to increase collaborations at international level among us. In addition to the excellent program, the symposium provides an excellent environment to meet your peers in sunflower research, build relationships, and exchange lessons learned.

As one of beautiful cities in the world, first time visitors to Antalya are usually overwhelmed by the sheer beauty of the city and surroundings. Antalya is a city that manages to surprise and enthuse in equal measure, with reminders of Antalya's rich landscape and historical sites. Antalya which is Turkey's principal holiday resort is an attractive city with palm lined street and it is full of history with a beautiful coastline of beach has and rocky coves where the towering Toros mountains. There is sunshine for 300 days of the year in Antalya and it is perfect place for sunbathing and swimming or for sporting activities such as windsurfing water-skiing, sailing and also climbing, trekking, hunting and skiing on mountains, etc... We are sure that these symposium days and half day sightseeing tour will be enough to notice the beauty of Antalya province but not enough to discover it.

We wish you nice stay in Antalya for truly rewarding days.

**Dr Yalçın KAYA**  
**Chair**  
**On the behalf of Organizing Committee**

## Symposium Program:

<u>Day</u>	<u>Event</u>
<b>Sunday, November 30, 2008</b>	
<b>16<sup>00</sup> - 19<sup>00</sup></b>	<b>Registration</b>
<b>Monday, December 1, 2008</b>	
<b>8<sup>30</sup> - 9<sup>00</sup></b>	<b>Registration</b>
<b>9<sup>00</sup> - 9<sup>30</sup></b>	<b>Opening Talks:</b>  <b>Dr. Yalcin KAYA, Chair, Organizing Committee</b> <b>Dr. Necmi BESER, Director of Trakya Agricultural Research Institute</b> <b>Dr. Vehbi ESER, President of Turkish Plant Breeders Association</b> <b>Prof Dr. Dragan SKORIC, On the behalf of Scientific Committee</b> <b>Assoc. Prof Dr. Masum BURAK, Director General, The General Directorate of Agricultural Research</b>
<b>9<sup>30</sup> - 10<sup>00</sup></b>	<b>Invited speakers: A. Höniges, K. Wegmann, A. Ardelean</b> <b>Orobanche Resistance in Sunflower</b>
<b>10<sup>00</sup> - 10<sup>30</sup></b>	<b>Invited speaker: D. M. Joel, D. Plakhine</b> <b>Seed Conditioning of <i>Orobanche</i> in Agricultural Fields: Ecophysiological Aspects</b>
<b>10<sup>30</sup> - 10<sup>45</sup></b>	<b>Coffee break</b>
<b>10<sup>45</sup> - 12<sup>00</sup></b>	<b>1<sup>st</sup> Session: <u>BROOMRAPE BIOLOGY, PLANT HOST RELATIONSHIPS</u></b> <b>Session Chair : Prof. Dr. Jose Maria Melero Vera</b>
<b>10<sup>45</sup> - 11<sup>05</sup></b>	<b>Broomrape (<i>Orobanche</i> spp.) Problem in The Eastern Mediterranean Region of Turkey</b> F. Bülbül, E.Aksoy, S.Uygur, N.Uygur
<b>11<sup>05</sup> - 11<sup>25</sup></b>	<b>Current status of broomrape (<i>Orobanche cumana</i> Wallr) in Serbia</b> <b>B. Dedić, N. Lačok, S. Tančić, S. Jocić</b>
<b>11<sup>25</sup> - 11<sup>45</sup></b>	<b>Sunflower broomrape (<i>Orobanche cumana</i> Wallr.) in Castilla-León, a traditionally non broomrape infected area in Northern Spain.</b> <b>J. Fernández-Escobar, M.I. Rodríguez-Ojeda, L.C. Alonso</b>
<b>11<sup>45</sup> - 12<sup>00</sup></b>	<b>Questions and Answers</b>
<b>12<sup>00</sup> - 13<sup>00</sup></b>	<b>Lunch</b>
<b>13<sup>00</sup> - 14<sup>15</sup></b>	<b>2<sup>nd</sup> Section: <u>RESISTANCE BREEDING</u></b> <b>Section Chair : Prof. Dr. Stevan Masirevic</b>
<b>13<sup>00</sup> - 13<sup>20</sup></b>	<b>Virulence and aggressiveness of sunflower broomrape (<i>Orobanche cumana</i> Wallr.) populations, in Europe</b> <b>M. Pacureanu Joita, S. Raranciuc, E. Sava, E. Petcu, N. Babeanu, O. Popa</b>
<b>13<sup>20</sup> - 13<sup>40</sup></b>	<b>The Wild Species <i>Helianthus</i> - Source of Resistance to the Parasite <i>Orobanche cumana</i></b> M. Christov, R. Batchvarova, M. Hristova-Cherbadzhi
<b>13<sup>40</sup> - 14<sup>00</sup></b>	<b>Behavior of some sunflower cultivar at the broomrape attack in Romania</b> <b>V. Jinga, H. Iliescu, S. Stefan, D. Manole</b>
<b>14<sup>00</sup> - 14<sup>15</sup></b>	<b>Questions and Answers</b>
<b>14<sup>15</sup> - 14<sup>30</sup></b>	<b>Coffee break</b>
<b>14<sup>30</sup> - 17<sup>00</sup></b>	<b>3<sup>rd</sup> Section: <u>RESISTANCE BREEDING</u></b> <b>Section Chair : Prof. Dr. Jose Maria Fernandez</b>
<b>14<sup>30</sup> - 14<sup>50</sup></b>	<b>Sunflower breeding for resistance to the new broomrape race in the Krasnodar region of Russia</b> S.V. Gontcharov
<b>14<sup>50</sup> - 15<sup>10</sup></b>	<b>The Use of new Rf Inbred Lines Originating from Interspecific Population</b>

	<b>with <i>H. deserticola</i> for the Production of Sunflower Hybrids Resistant to Broomrape</b> N. Hladni, S. Jocić, V. Miklič, D. Saftić-Panković, D. Škorić
15 <sup>10</sup> - 15 <sup>30</sup>	<b>The performance of sunflower hybrids resistant to race F of <i>Orobanche cumana</i> Wall. in naturally infested fields.</b> J. M. Melero-Vara, R. García Ruiz, J. Domínguez, M. L. Molinero-Ruiz
15 <sup>30</sup> - 15 <sup>50</sup>	<b>The Evaluation of Broomrape Resistance in Sunflower hybrids</b> Y. Kaya, G. Evcı, V. Pekcan, T. Gucer, M. I. Yilmaz
15 <sup>50</sup> - 16 <sup>10</sup>	<b>The Virulence of Broomrape (<i>Orobanche cumana</i> Wallr.) Populations on Sunflower in some Regions of Northern Caucasus</b> T.S. Antonova, N.M. Araslanova, S.Z. Guchetl, T.A. Tchelustnikova, S.A. Ramazanova, E.N. Trembak
16 <sup>10</sup> - 16 <sup>30</sup>	<b>Determination Superior Hybrid Combinations in Sunflower and Testing Hybrid Performance in Broomrape (<i>Orobanche Cumana</i> Wallr.) Infested Areas</b> O. Gunduz, A. T. Goksoy
16 <sup>30</sup> - 16 <sup>50</sup>	<b>Ongoing Research Strategies for Sunflower Broomrape Control in Spain</b> J. M. Fernández-Martínez, J. Domínguez, B. Pérez-Vich and L. Velasco
16 <sup>50</sup> - 17 <sup>10</sup>	<b>Status of broomrape in Serbia</b> S. Masirevic
17 <sup>10</sup> - 17 <sup>30</sup>	Questions and Answers
17 <sup>30</sup> - 18 <sup>30</sup>	<b>Discussion Session: Recent developments on the distribution of new race of Broomrape by participating countries</b> <b>Session Chair: Prof. Dr. Ferenc Vranýl</b>
19 <sup>00</sup> - 20 <sup>00</sup>	Dinner
<b>Tuesday, December 2, 2008</b>	
9 <sup>00</sup> - 11 <sup>00</sup>	<b>4<sup>th</sup> Session: Broomrape Chemical and Other Control Methods in sunflower</b> <b>Session Chair : Prof. Dr. Horia Iliescu</b>
9 <sup>00</sup> - 9 <sup>20</sup>	<b>Improving sunflower for resistance to Orobanche and Sulfonylureas herbicides - Sunflower hybrid PF100</b> G. Dicu, N. Dumitrescu, M. Radu, O. Diaconescu
9 <sup>20</sup> - 9 <sup>40</sup>	<b>Control of Broomrape in Iran</b> A. Esmaailifar, A. Nezamabadi, A. Mirabadi
9 <sup>40</sup> - 10 <sup>00</sup>	<b>Status of <i>Orobanche cernua</i> Loefl. and Weeds in Sunflower Production in Turkey</b> M. Demirci, Y. Kaya
10 <sup>00</sup> - 10 <sup>15</sup>	Questions and Answers
10 <sup>15</sup> - 10 <sup>30</sup>	Coffee break
10 <sup>30</sup> - 11 <sup>30</sup>	<b>Discussion: COST and other joint EU Project proposals</b> <b>Session Chair : Prof. Dr. Dragan Skoric</b>
11 <sup>40</sup>	Closing the symposium
12 <sup>00</sup> - 12 <sup>30</sup>	Lunch
12 <sup>30</sup> - 20 <sup>00</sup>	<b>Sightseeing Tour (Antalya city and around)</b>
20 <sup>30</sup> - 21 <sup>30</sup>	Dinner
<b>Wednesday, December 3, 2008,</b> <span style="float: right;">Leaving from the hotel</span>	

**ORGANIZING COMMITTEE:**

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Prof Dr Dragan SKORIC

**SCIENTIFIC COMMITTEE:**

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Dr Maria PACUREANU.....Romania  
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The hotel and sightseeing tour arrangements are organized by SSC Tour Travel Agency.

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# **The Use of New Rf Inbred Lines Originating From Interspecific Population with *H. deserticola* for the Production of Sunflower Hybrids Resistant to Broomrape**

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## **ABSTRACT**

One of the directions in sunflower breeding is selection for the resistance to broomrape. The population of broomrape has been stable in Serbia for a longer period of time, but the racial composition has changed in recent years, with race E being predominant in the regions of north Backa and Banat. Cultivated sunflower is genetically narrow and deficient in many desirable genes. Its genetic variability can be increased by the use of wild sunflower species and interspecific hybridization.

The resistance of 15 new experimental hybrids to broomrape was tested on locations in Serbia (Pačir) during three years (2006, 2007, 2008) and in Romania (Baraganu, Bralia) during 2008. These hybrids were produced by crossing female inbred lines (Ha-26PR-A, PH-BC<sub>2</sub>-92-A and Ha-98-A) susceptible to broomrape and new Rf inbred lines (RHA-D-2, RHA-D-5, RHA-D-6, RHA-D-7, RHA-D-8), developed from interspecies population originating from *H. deserticola*, and resistant to broomrape race E. All examined hybrids were resistant to broomrape on both locations. Since broomrape race F is present on location in Romania, it is expected that the new Rf inbred lines-male components of examined hybrids, have the resistance gene for race F also.

**Key words:** sunflower, interspecific hybridization, resistance, broomrape