Foreword

The parasitic angiosperm broomrape (*Orobanche cumana* Wallr.) causes economic damage in sunflower production in a number of countries around the world, but especially in Central and Eastern Europe, Spain, Turkey, Israel, Iran, Kazakhstan, and China. For almost a century, there has been a constant tug-of-war between sunflower breeders and *Orobanche cumana*, with frequent changes in which side has the upper hand. Almost as soon as the breeders find a source of resistance to the latest race of the pathogen, broomrape responds by evolving another virulent race. The development of resistant cultivars as well as optimized managing strategies is a high priority in controlling this parasite, over the world.

The Board of the International Sunflower Association (ISA) proposed in their past meeting held in Paris in February 2017 to organize a new International Symposium on Broomrape in Sunflower in Romania in July 2018. This will be the fourth specific symposium on broomrape in sunflower, after those held in Turkey 2008, Moldova 2011 and Spain 2014.

The symposium is organized by the National Agricultural Research and Development Institute Fundulea and University of Agronomy and Veterinary Medicine Sciences in Bucharest in cooperation with the International Sunflower Association (ISA). Also, the Research Station in Brăila and Institute for Variety Testing and Registration in Bucharest, are collaborating for this. The symposium will be held in Bucharest, in the building of the Faculty of Biotechnology on July 2-4, 2018. The symposium will cover all aspects related to broomrape parasitisms in sunflower, including parasite biology, physiology, parasite-host interaction, racial status of broomrape, genetic resistance, molecular breeding, chemical control using herbicide-tolerant, integrated management.

The symposium will gather sunflower scientists around the world, presenting their recent achievements. The organizers will also invite relevant stakeholders to provide a view on broomrape situation around the world as well as prospects to overcome the limitation for sunflower production, imposed by this parasitic weed.

The Organizing Committee

C O N T E N T S

I. BIOLOGY AND GENETICS OF THE PARASITE OROBANCHE CUMANA

II. RESISTANCE MECHANISMS TO OROBANCHE CUMANA *IN SUNFLOWER*

III. GENETIC RESISTANCE TO SUNFLOWER BROOMRAPE

IV. HERBICIDE TOLERANCE AND OTHER CONTROL METHODS