

## **Seed Conditioning of Orobanche in Agricultural Fields: Ecophysiological Aspects**

Daniel M. Joel\* and Dina Plakhine

Department of Plant Pathology and Weed Research, ARO, Newe-Ya'ar Research Center, P.O. Box 1021, Ramat-Yishay 30095, Israel. [dmjoel@volcani.agri.gov.il](mailto:dmjoel@volcani.agri.gov.il)

It is widely known that Orobanche seeds need a conditioning phase of several days under suitable temperatures and wet conditions before being able to germinate in response to germination stimulants. However, this knowledge of seed behavior is solely based on in vitro experiments, while the conditions in the field may significantly differ from the conditions in Petri dishes. In a series of experiments we have shown that *O. cumana* seeds respond to the germination stimulant GR24 even without prior conditioning. The germination of non-conditioned seeds was not observed before, because the experiments did not last long enough to observe germination, since the non-conditioned seeds need a longer lag time before germinating after stimulant reception. These results are consistent with our hypothesis that, under certain field circumstances, non-conditioned Orobanche seeds may also germinate when a host root comes close to them, which may be significant in the understanding of Orobanche behavior in sunflower fields.