

ESL 5: Parasitic Angiosperms as medicinal plants

Karl Hammer¹, Merita Hammer-Spahillari²

¹ Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) Gatersleben, Corrensstrasse 3, D-06466 Stadt Seeland, OT Gatersleben, Germany, e-mail: khammer.gat@t-online.de (corresponding author)

² Dr. Junghanns GmbH, Aue 182, D-06449 Aschersleben, OT Groß Schierstedt, Germany

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Abstract

Parasitism is only found in eudicotyledonous Angiosperms in all continents and in one Gymnosperm from New Caledonia. At least eleven independent origins of parasitism in Angiosperms have been proposed.

The economic importance of parasites is generally considered as negative in connection with dangerous species for agriculture, horticulture and forestry (e.g., *Orobanche* spp. and *Striga* spp., Orobanchaceae, *Cuscuta* spp., Cuscutaceae, and *Arceuthobium* spp., Viscaceae). But there are a number of species useful as vegetables (*Melientha suavis*, Opiliaceae), sources for manufacturing cosmetics and soaps (*Santalum album*, Santalaceae) and fruit trees (*Ximenia americana*, Ximeniaceae). And there are numerous examples for the use of parasites as medicinal plants, often not yet confirmed by modern medical sciences.

In a recent survey, cultivated parasitic plants could be found in Olacaceae (1), Opiliaceae (1), Orobanchaceae (3), Santalaceae (6), Viscaceae (1) and Ximeniaceae (1, number of species in brackets). Among the species listed, there are also some medicinal plants. Most traditional under cultivation is *Santalum album* from tropical Asia (Santalaceae, hemiparasitic root parasite). An essential oil is extracted from the wood and roots; it is mostly used for oriental perfumes. Though their uses as medicinal plants may be rather old, some species have been taken into cultivation only towards the end of the last century, as *Viscum album* (Viscaceae, Europe and Asia, hemiparasitic on branches), *Cistanche deserticola* (China) and *Orobanche crenata* (Mediterranean, both Orobanchaceae, holoparasitic root parasites). For *Euphrasia officinalis* (Orobanchaceae, hemiparasitic root parasite) there are reports about cultivation in Europe in the past, but recent experiences are lacking.

The cultivation of parasites for medicinal uses is a challenge. But there are new prospects because of developing domestication and cultivation strategies.

Keywords: parasite, angiosperms, medicinal plants, cultivation, domestication