Host Plant Specificity and Allozyme Variation in the Parthenogenetic Gall Wasp Diplolepis mayri and its Relatedness to D. rosae (Hymenoptera: Cynipidae)

Bo Stille

Received: 1984-11-16
Accepted: 1984-12-16


The host plant affinities and allozyme variation of the gall wasp Diplolepis mayri (Schlechtendal 1877) in S' Sweden are investigated and comparisons to the parthenogenetic D. rosae (Linnaeus 1758) are made. 2 electrophoretically distinct types of D. mayri, both clearly separated from D. rosae, were detected; a N' type which parasitizes Rosa majalis and R. villosa, and a S' type confined to R. rubiginosa. The N' type, which consists of 3 slightly differentiated genotypes, appears to have colonized Sweden from Finland. The S' type is attacked by the parasitoid Orthopelma mediator (Thunberg 1822) [Ichneumonidae] and the inquiline Periclistus brandtii (Ratzburg 1831) [Cynipidae]. Both these species are common in the galls of D. rosae, but were not found in the galls of the N' type of D. mayri, which have another inquiline, P. caninae (Hartig 1840). δδ are common in the S' type and at the most N' localities of the N' type. The systematic relationship between the 3 forms as indicated by the electrophoretic data differs from that implied by host plant specificity, parasitoids, and gall structure.

1 Introduction

The species in the holarctic wasp genus Diplolepis Geoffroy 1762 are all confined to roses (Rosa spp), on which they induce galls of varying types, from the small and smooth pea-galls of D. eglanteriae (Hartig 1840) to the large, multichambered, hairy galls of D. rosae (Linnaeus 1758). Gall characteristics have often been used in gall-wasp taxonomy, a fact that can at least partly explain the lack of adequate information on wasp morphology [Shorthouse 1973, Ritchie & Peters 1981]. The use of gall characters in species descriptions and keys is founded on the assumption that the gall structure of a certain species is unique and not affected by host plant species.

In the case of the thelytokous (amphitokous) species D. rosae, one of the most thoroughly studied Cynipidae, this holds true since the familiar mossy gall of this species has been reported from a number of different rose species. The frequencies at which the different roses are parasitized differ, but neither gall morphology, nor the genetic variation...