Two Ascogaster species (Hymenoptera, Braconidae), parasites of leafrollers (Lepidoptera, Tortricidae) in apple orchards, with different host selection

by

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Among extensive material of parasites, reared from leafrollers by Drs. D. J. DE JONG, Wilhelminadorp, in the Province of Zeeland, and in lesser material from Wageningen and the Betuwe District, two species of *Ascogaster* were present in fairly large numbers: *A. quadridentatus* Wesmael and *A. rufidens* Wesmael.

Though both species live in the same habitat, apple orchards, they seem to differ in their host selection. Unfortunately it was only possible to identify two host species of larval leafrollers with certainty: *Laspeyresia pomonella* (L.), the codling moth, and *Spilonota ocellana* (F.), the bud worm. The former was easily recognized as cocoons collected from trapping bands, the second by its dark brown colour. All the other apple leafroller caterpillars are more or less greenish and live in webs between the leaves. The majority of them belong to the species *Adoxophyes orana* (F.v.R.) and *Archips rosana* (L.).

Ascogaster quadridentatus appears to be a common parasite of *Laspeyresia pomonella* and *Spilonota ocellana;* it was only occasionally reared from greenish leafroller larvae. *Ascogaster rufidens,* however, seems to be a common parasite of the greenish leafroller larvae, but it was never bred from *Laspeyresia pomonella,* neither from *Spilonota ocellana.*

Though in the literature *Ascogaster quadridentatus* is recorderd as a parasite from quite a number of lepidopterous hosts, it is evident that Tortricidae predominate (ROSENBERG, 1934; THOMPSON, 1953; ZECH, 1959). The same holds for almost all other *Ascogaster* species (THOMPSON, 1953).

We have reared parasites from a number of other lepidopterous hosts in apple orchards e.g. *Orthosia* spp., *Operophtera brumata* (L.) and *Yponomeuta padellus* (L.), but *Ascogaster* was reared only from Tortricidae. Although THOMPSON (1953) lists *Ascogaster quadridentatus* as a parasite of *Yponomeuta padellus,* anyone, who has ever made a study of the host relationship of parasitic Hymenoptera, knows how many inaccuracies and mistakes exist in the literature. So I am inclined to assume that *A. quadridentatus* and probably all other *Ascogaster* species are exclusively parasites of Tortricidae.

Sometimes *Ascogaster rufipes* (Latr.) as well as *Ascogaster quadridentatus* is mentioned as a parasite of the codling moth. However, in the thorough investigations on the parasites of the codling moth *A. quadridentatus* is the only *Ascogaster* species mentioned as a parasite from this host (COUTIN & COLOMBIN, 1960; LEHMANN, 1968; ROSENBERG, 1934; ZECH, 1959). Therefore I assume that *A. quadridentatus* is the only parasite of the genus *Ascogaster* infesting codling moth. This parasite-host relationship is recorded not only from Europe but also from North America, where the parasite is sometimes mentioned under

the name of *Ascogaster carpocapsae* Viereck. It is also recorded as a parasite of *Spilonota ocellana* in eastern Canada (STULTZ, 1955). A study of the biology of *Ascogaster quadridentatus* in North America was made by COX (1932).

The female *Ascogaster* lays its eggs within the egg of its host. Development of the parasite is very slow at first. The host egg hatches normally and the parasite develops only rapidly after the host larva reaches maturity; the host larva does not reach the pupal stage.

Now within the family Tortricidae, *Adoxophyes* and *Archips* belong to the subfamily Tortricinae and *Laspeyresia* and *Spilonota* to the subfamily Olethreutinae. The members of Tortricinae lay their eggs in flat, smooth batches of several together, those of the Olethreutinae lay their eggs singly. The behaviour of the female parasite might be quite different if it has to find a very small egg and parasitize it, or if it has to find a much larger egg batch from which it must parasitize the eggs in succession.

Some apple leafroller species other than *Adoxophyes reticulana* and *Archips rosana* with greenish larvae also lay their eggs singly, e.g., *Hedya nubiferana* (Hw.). This may explain why *Ascogaster quadridentatus* was sometimes reared from greenish apple leafroller caterpillars.

I consider that in apple orchards *Ascogaster quadridentatus* is a parasite of Tortricidae Olethreutinae, which lay their eggs singly, and that *Ascogaster rufipes* is a parasite of Tortricidae Tortricinae, which lay their eggs in batches.

References

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Op onnaspeurlijke wijze is na alle correcties op p. 1080 een drukfout gekomen, die onmiddellijk verbeterd moet worden: **Perizoma bifaciata** Haworth, 1809 *(bifasciata* Haworth, 1828).