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Appendix

Details are provided here for a number of colonies that were kept in laboratory culture, or were particularly interesting for one or the other aspect. Dissections of females were made according to BUSCHINGER (1968) and ALLOWAY & al. (1982). As in these papers, "A" means a mated, egg-laying female, "b" is a newly mated, not yet laying individual, "c" is unmated; "C" is a virgin, but egg-laying female. The interpretation of the results is summarized (separated by a dash and in brackets) for each colony, or for single annual cycles of a colony, for easier reference in the Results and Discussion chapters.

Colony # 251 (coll. 26 June 2002) :The exact number of original dealate females of *T. minutissimus* was not recorded but there were at least three. In the first laboratory summer, at least 20 young females of *T. minutissimus* were reared (plus probably a male that was responsible for their insemination, see below). After a first laboratory hibernation (6 January to 21 April 2003), with only two surviving larvae, many of the dealate females were crawling around outside the nest chamber. When dissected, seven were not inseminated, but five had sperm in the spermathecae, though in comparatively low amount (ca 10 - 20 - 50 % of the normal sperm mass). None of the dissected females had been egg-laying (A-♀). Three females remained in the nest, together with the host queen.

About 8 weeks later, the first *T. minutissimus* female pupae were recorded. One female of *T. minutissimus* was observed laying an egg (it was of the same size as the host species eggs), and twice a female was seen "riding" on top of the host queen, vigorously licking her. A total of four females and one male of *T. minutissimus* were reared in this season. – (Rapid brood sexuals, since only two larvae had hibernated; spermathecae may be insufficiently filled).

In fall 2003, only four females of *T. minutissimus* had remained, and all were dissected. All four had sperm in their spermathecae, two were "b" (recently mated, hence mated in the nest, spermathecae full but ovaries short as in virgins), and two had somewhat longer ovarioles, apparently had been egg-laying already. – (Intranidal mating).

A second hibernation followed (24 October 2003 - 29 March 2004), with the host queen but no *T. minutissimus* specimens remaining in the nest.

Until 27 May a total of 41 females of *T. curvispinosus* were reared that began to leave from the nest for swarming. At that time, pupae of *T. minutissimus* were first recorded. A total of 18 females of *T. minutissimus* but no males were reared. By August 2004, nevertheless all the females had lost their wings. – (Sexuals of *T. minutissimus* are reared within the same season but after the host species sexuals. Sexuals of *T. minutissimus* can develop from hibernated "slow brood").

Colony # 326 (coll. 30 September 2002): All seven females of *T. minutissimus* (3 dealate, 4 alate) were dissected on 6 January 2003 (1 A; 6 b. Two b-♀♀ had only about 10 to 20 % of the regular sperm mass in their sperma-