THE FIRE ANT PARASITE *SOLENOPSIS DAGUERREI*: PROGRESS REPORT AT THE USDA-ARS-SABCL-ARGENTINA

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The parasitic ant, *Solenopsis daguerrei* (Santschi) has been considered a potential candidate for the biological control of imported fire ants since the 1970's (Lofgren et al. 1975, Jouvenaz et al. 1981, Jouvenaz 1983 and 1990). Its presence was surveyed in South America and some detrimental effect has been documented on populations of the native fire ant *S. richteri* in Argentina (Bruch 1930, Silveira-Guido et al. 1973, Briano et al. 1997, Calcaterra et al. 1999).

Field host range

Field host range studies were conducted by examining numerous ant colonies in San Eladio, Buenos Aires Province, Argentina. This is the only field site where *S. daguerrei* has been found consistently since 1995. A total of 4,316 ant colonies of 9 species and 4 subfamilies were visually examined for the presence of the parasite. However, 96% were colonies of fire ants which are the predominant ants of the area. Other species found and examined were: *Pheidole bergi* Mayr, *Acromyrmex lundi* Guérin, *A. ambiguus* Mayr, *Camponotus punctulatus* Mayr, *Neivamyrmex pertyi* Shuckard, *Linepithema humile* Mayr, and *Brachymyrmex* sp. *S. daguerrei* was found exclusively parasitizing 3.9% of the fire ants *S. richteri* Forel and *S. quinquecuspis* Forel. *S. quinquecuspis* is reported for the first time as host for *S. daguerrei*.

Newly mated queens

Twelve colonies of *S. richteri* parasitized with *S. daguerrei* were collected in San Eladio in buckets coated with talc, brought to the laboratory, and placed in a plastic greenhouse. With appropriate weather conditions (24-33°C and high RH), 568 *S. daguerrei* sexuals were captured with an aspirator after they naturally flew out of the host colonies. From them, 97.5% were females and 81% lost their wings immediately after capture. Some were dissected (n=169) and insemination was confirmed in 84% of them. After several weeks, the colonies were separated from the soil by flotation and the remaining *S. daguerrei* females were dissected. Only 32% of were inseminated. We conclude that *S. daguerrei* mates within the host nest and mostly inseminated females fly from the host colony.

Process of Parasitism

The natural mechanism through which *S. daguerrei* enters a new fire ant host colony is unknown. Many tests were conducted to artificially parasitize *S. richteri* colonies but none were successful. Queens, sexuals, and pupae of *S. daguerrei* were

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