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ECHINOPSIS CHILENSIS (FRIEDRICH ET ROWLAND): AN ENDEMIC BREEDING SITE FOR *DROSOPHILA PAVANI* BRNCIC 1957.

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ABSTRACT

The endemic species *D. pavani* was bred from the fermenting tissues of the columnar cactus *E. chilensis*, collected near Til-Til (33°05' S, 70°54' W). This is the first time that an endemic host is described for the species.

RESUMEN

Se obtuvo individuos de *D. pavani* de los tejidos fermentados del cactus columnar *E. chilensis* hallados en las cercanías de Til-Til (33°05'S, 70°54' W). Esta es la primera vez que se describe un hospedero endémico para *D. pavani*.

INTRODUCTION

In *Drosophila,* oviposition choice es related to the host's trophic and physico-chemical characteristics (Barker, 1990), and this is not usually considered when collecting flies in the field. The standard fermenting bait may seriously bias the samples taken from a local community.

D. pavani is widespread in Chile, ranging from Copiapó (27°20'S) to Valdivia (39°52'S). The fly is endemic and belongs to the *D. mesophragmatica* group in the subgenus *Drosophila* (Brncic 1957, 1987a) . Although easily collected with fermenting banana baits in a variety of different wild habitats, and in several ones associated with man such as gardens and orchards (Brncic, 1987b), little is known about its breeding sites.

In this paper, we identify a natural endemic host for *D. pavani*, the columnar cactus *E. chilensis*; its fermenting tissues are used in the field as breeding sites by the fly.

MATERIAL AND METHODS

We sampled a locality 50 km to the NW of Santiago, near Til-Til (33°05' S, 70°54' W) . The surrounding mountains support abundant populations of the columnar cactus *E. chilensis,* as well as other Cactaceae and xerophytic shrubs. Fermenting tissues ("rot-pockets") of *E. chilensis* were collected on July, 1992, taken to the laboratory, and transferred into population cages kept at room temperature. Adults were allowed to emerge and isofemale lines were set up to establish their specific status. Fermenting baits of kiwi and banana were set from 11:00 to 18:00 with no results. The lines were crossed to tester strains for the *D. mesophragmatica* group, v.z., *D. pavani* (La Florida, Santiago de Chile), *D. pavani* (La Serena, Chile), *D. gaucha* (Jaeger & Salzano, 1953) (Tainhas, Brazil), *D. mesophragmatica* (Brncic & Koref-Santibañez, 1957) (La Paz, Bolivia) and *D. mesophragmatica* (Colombia). We run 2 series of crosses, with 3 repli-

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cates/series. A cross was considered successful when an abundant F_2 was obtained. The flies were identified with keys published by Brncic (1957, 1987a). We also checked the polythenic chromosomes of hybrids between the emerged flies and *D. gaucha* (Tainhas). *E. chilensis* was identified with the key published by Hoffmann (1989).

RESULTS AND DISCUSSION

A total of 38 females and 43 males emerged from the rotpockets in the laboratory, that were provisionally identified as *D. pavani* In Table 1, we show the results of the crosses with the tester strains, only the crosses with both *D. pavani* strains gave abundant F_2's. The chromosome analysis confirmed the specific status of the emerged flies.

In Chile, an association between endemic cacti and endemic *Drosophila* was reported for *D. atacamensis* (Brncic, 1987) and *Copiapoa cinerea* Philippi (Brncic, 1987b). Such associations have been studied in detail, among others, for the Sonoran Desert (Heed & Mangan, 1986) and for Northern South America (Benado *et al.*, 1984; Benado, 1989). In the latter region, the most efficient collecting method is by rot-pocket sampling, rather than by using standard baits (Benado, unpublished). Our results show that in Central Chile the sampling of fermenting tissues is also an efficient method, and that the endemic *E. chilensis* is not an ocassional host for *D. pavani* since emergences were abundant. However, our records indicate that Cactaceae rot in Chile mainly in Winter. This opens the possibility that *D. pavani* may shift hosts seasonally.

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TABLE 1
CROSSES BETWEEN INDIVIDUALS THAT EMERGED FROM *E. CHILENSIS* WITH TESTER-STRAINS FROM THE *D. MESOPHRAGMATICA* GROUP.

	mesophragmatica group strains		
	D. pavani La Florida, La Serena	*D. gaucha* Tainhas	*D.mesophragmatica* La Paz, Colombia
Drosophila sp. (Til-Til)	fertile F_2	sterile F_1	dead embryos