testicular size showed individual variation among brothers from the same isolines, and significant differences were found between population pairs [$F(3,514) = 12{,}182$, $p = 0.000$]. Interestingly, it seems that the testis length increases with increasing elevation (Figure 3). But that point needs a detailed study of a much more extensive sampling.

In conclusion, we are confident that these are very recent introductions for the region, as we had been sampling *Drosophila* specimens in the area previously without detecting *Z. tuberculatus* until 2010. The locations chosen were different in terms of altitude, and we could not collect *Z. tuberculatus* above 1000 meters above sea level despite more traps being laid in higher altitudes (Table 1).

Table 1. Number of adult specimens of *Z. tuberculatus* collected from different regions of Adana, Turkey.

Geographical Locations	Habitat	Altitude	No. of traps	No. of individuals
ADANA (37.03°N, 35.82°E)	Urban	35 m.	20	100
KOZAN (37.45°N, 35.80°E)	Suburban	150 m.	10	100
DUZAGAC (37.58°N, 35.82°E)	Forested-rural area	500 m.	30	195
HORZUM (37.62°N, 35.84°E)	Forested-rural area	700 m.	20	127
TUFANBEYLİ (38.26°N, 36.22°E)	Suburban	1.430 m.	50	-
SARIZ (37.81°N, 35.70°E)	Rural area	1.612 m.	45	3
SAİMBEYLİ (37.98°N, 36.09°E)	Forested-rural area	1.000 m.	30	3

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Drosophilid collections at Moleques do Sul archipelago, southern Brazil.

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Moleques do Sul is an oceanic archipelago near Santa Catarina Island, Santa Catarina state, southern Brazil. It is located 14 km from the coast and made up of three small islands with a total area of 10.5 hectares. The main island, also called Moleques do Sul, has 9.86 ha, from which 6.34 is covered with grass and bush vegetations and the rest by rocky terrain. The vegetation cover of this area has had many taxonomic surveys carried out (Gomes *et al*., 2005; Rogalski and Araújo, 2005).

Table 1. Absolute (ni) and relative (pi) abundance of drosophilids in each collection and in the total sample at Moleques do Sul Archipelago. Sum - Summer; Aut - Autumn; Win - Winter; Spr - Spring.

					Sum04		Aut05		Win05		Spr05		Sample	
Genus	**Subgenus**	**group**	**subgroup**	**species**	***ni***	***pi***	***ni***	***pi***	***ni***	***pi***	***ni***	***pi***	***ni***	***pi***
Drosophila	*Dorsilopha*	*busckii*		*D. busckii* Coquillett, 1901							2		2	
	Drosophila	*annulimana*		unidentified							3		3	
		cardini	*cardini*	*D. cardini* Sturtevant, 1916	2	0.00	1						3	
				D. neocardini Streisinger, 1946	6								6	
				D. polymorpha Dobzhansky & Pavan, 1943	166	0.31	2		5	0.05	11	0.06	184	0.17
		immigrans		*D. immigrans* Sturtevant, 1921	2								2	
		pallidipennis		*D. pallidipennis Dobzhansky & Pavan, 1943*	47	0.09					2		49	0.05
		repleta	*fasciola*	*D. mapiriensis* Vilela & Bächli, 1990							2		2	
			repleta	*D. zottii* Vilela, 1983							1		1	
			mercatorum	*D. mercatorum* Patterson & Wheeler, 1942	31	0.06	8		3		20	0.10	62	0.06
			mulleri	*D. meridionalis* Wasserman, 1962	38	0.07	18	0.08	10	0.10	6		72	0.07
				D. serido Vilela & Sene, 1977 or *D. antonietae* Tidon-Sklorz & Sene, 2001			1						1	
				unidentified	34	0.06	8		10	0.10	24	0.12	76	0.07
		tripunctata	*ii*	*D. cuaso Bächli, Vilela & Ratcov, 2000 and D. paraguayensis Duda, 1927*							2		2	
				D. mediopunctata Dobzhansky & Pavan, 1943	9				1		3		13	
			iii	*D. mediopicta* Frota-Pessoa, 1954	3								3	
				unidentified	25				3		8		36	
		not agrouped		*D. caponei Pavan & Cunha, 1947*	1								1	
	Sophophora	*melanogaster*	*ananassae*	*D. ananassae* Doleschall, 1858			2						2	
			melanogaster	*D. simulans* Sturtevant, 1919	88	0.16	163	0.74	71	0.69	66	0.34	388	0.37
			montium	*D. kikkawai* Burla, 1954	1		3				1		5	
		willistoni	*bocainensis*	*D. capricorni Dobzhansky & Pavan, 1943*	17		1						18	
				D. fumipennis Duda, 1925									0	
				D. nebulosa Sturtevant, 1916									0	
			willistoni Pavan, 1952		68	0.13	11	0.05			46	0.23	125	0.12
		dreyfusi	unidentified	unidentified			1						1	
Zaprionus	*Zaprionus*	*armatus*	*vittiger*	*Z. indianus* Gupta, 1970	3								3	
TOTAL					541	1.00	219	1.00	103	1.00	197	1.00	1060	1.00

The island of Moleques do Sul mantains the unique population of the small rodent *Cavia intermedia* Cherem (Olímpio and Ximenez 1999), the most endemic mammal known to date. This population has been isolated since the raising of the sea, approximately 7-10.000 years ago (Hesp *et al*., 2007), and it is classified by the IUCN red list as a critically threatened species (Salvador and Fernandez, 2008).

Following a series of collections in small islands around the main island of Santa Catarina, Florianópolis (De Toni *et al*., 2007), in the present study we report the first collections of drosophilids in this archipelago.

Collections were performed using five banana baited traps, made according to Tidon and Sene (1988), in four seasonal collections, from December 2004 to October 2005. The traps were placed in vegetated areas of Moleques do Sul Island (27º52'82"S; 48º25'89"W), in the shade, and left in the field for three days. Flies were brought to the laboratory and identified by external morphology or morphology of male genitalia (following Wheeler and Kambysselis, 1966, modified by Kaneshiro, 1969). Most females were identified just to species group level. Additionally, we swept over and collected flowers from *Verbesina glabrata* Hook. and Arn. (Asteraceae), the most abundant bush of the island (Gomes *et al*., 2005).

The total number of drosophilids collected in traps came to 1060, distributed in 20 species, (Table 1). Overall, *Drosophila simulans*, *D. polymorpha* and *D.*sgr. *willistoni* were the dominant taxa and made up more than 60% of the sample. These are ecologically generalist species and common on open areas (Sene *et al*., 1980; Gottschalk *et al*., 2007; Bizzo *et al*., 2010) as well as in other islands (De Toni *et al*., 2007).

The occurence of cactophilic species is intriguing. *Drosophila meridionalis*, *D. serido* (or *D. antonietae*), *D. mapiriensis*, and *D. zottii* are known to breed only on cacti, and we found a single large specimen of *Opuntia* which could not be inspected for larvae due to its coastal location. Gomes *et al*. (2005) and Rogaski and Araújo (2005) list two cacti species on this island, *Opuntia arechavaletai* Speg. and *Pereskia aculeata* Mill.

The absence of species groups characteristic of forested areas and humid places, such as the *saltans* group and most of the *tripunctata* group (Pavan, 1959; Sene *et al*., 1980), as well as the more ecologically restricted species of the other groups, is evidence that this harsh environment with scarce breeding and feeding resources cannot support complex communities. Also, the geographic isolation of the island is certainly limiting the incoming of flies, but still is not completely sufficient to avoid the introduction of exotic species such as *D. simulans*, *D. ananassae*, *D. kikkawai*, *D. immigrans*, and *Z. indianus*.

Our collection of inflorescences also gathered results. Eight adult individuals of the genus *Cladochaeta* Coquillet 1900 were captured on the inflorescences, and another 18 emerged from the capitules brought to the laboratory. This genus is known to have parasitic larvae, feeding on haemolymph and the spit of the spittlebugs, Cercopidae (Hemiptera: Auchenorrhyncha). There are currently two reports of *Cladochaeta* using flowers as breeding sites. *Cladochaeta floridana* emerged from *Bidenspilosa* (Compositae) in the United States, and larvae of *C. psychotria* were observed feeding on pollen of *Psychotria chiriquiensis* (Rubiaceae), in Costa Rica. Grimaldi and Nguyen (1999) point out that the former result is questionable; larvae might have developed on spits and later found an inflorescence to pupate. We cannot rule out this possibility from our data, but we saw no evidence of spittlebugs.

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Drosophila in honeydew: an opportunistic resource.

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Drosophilids are small flies that usually breed on decaying vegetal material. They commonly feed on yeast and bacteria present during the fermentation process. The most studied genus, *Drosophila*, comprehends species that use mainly fruits, flowers, fungi, or cacti as feeding and breeding resources, although some other extreme niches are found (Carson, 1971).

In the last decade, there has been a sharp increase on the study of Neotropical *Drosophila* ecology. Temporal and spatial variation of groups and species has been a major theme (Tidon *et al*., 2006; Mateus *et al*., 2006; Bizzo *et al*., 2010, Schmitz *et al*., 2010; Poppe *et al*., 2012), and researchers are now moving towards the study of the mechanisms that determine the temporal and spatial patterns. One main topic in this area is resource use; decomposing material used by flies as feeding and breeding sites (Valadão *et al*., 2010). These observations are scattered among *Drosophila* literature, but were recently increasing on fruits (De Toni *et al*., 2007; Roque *et al*., 2009), fungi (Gottschalk *et al*., 2009), and flowers (Schmitz, personal communication). Here we report a new feeding resource for drosophilids: the honeydew of scale insects (Hemiptera: Coccoideae).

In the begining of July 2012, one of us (M.R.) observed a great mass of flies in a trunk of *Inga* sp. (Fabaceae) in an orchard at the campus of Universidade Federal de Santa Catarina (27°35'54"S; 48°30'54" W). The trunk was infested with scale insects that secreted a sugar-rich and sticky liquid that eventually dropped and soaked the ground. After being secreted, the honeydew started hardening, got waxy, and was covered by dark and green mould. We monitored the tree on the following week until the temperature dropped (it was mid winter) and no more flies were collected.

The mass of flies was most evident during the hottest hours of the day and consisted mainly of Milichiidae (Carnoideae) and were tentatively assigned to *Milichiella* Gigio-Tos and *Pholeomyia* Bilimek. Some Drosophilidae, Dolichopodidae, Mycetophilidae, and Syrphidae, as well as *Apismellifera* L. (Hymenoptera, Apidae), were also collected. Interestingly, flies were aggregated on places with direct sunshine and followed the sun movement. Initially we started to sweep for 10 minutes at morning, midday, and at noon, but it was clear that drosophilids occurred only in the morning. We swept the trunk and the soaked soil near the tree, as well as between its roots.