

less reactive species  $H_2O_2$  (Teixeira *et al.*, 1998). Catalase, a haeme-containing enzyme, scavenges hydrogen peroxide to water and molecular oxygen (Mates and Sanchez-Jimenez, 1999), and non-enzymic ascorbic acid, which is a water-soluble antioxidant forage free radical protect the biological system from oxidative stress (Beyer, 1994).

When flies were treated with plant sample alone, the activity of SOD was increased and the activity of catalase was decreased. The increase in the SOD activity may be because of the additional components present in the plant sample, since the plant sample used was commercially available crude sample of *R. serpentina*, and hence further study has to be achieved to isolate active constituents from the plant that can be used for applied research. Taken together our data suggest that the plant sample we used may have anti-stress property in it.

References: Ashburner, M., and J.N. Thompson, jr. 1978, In: *The Genetics and Biology of Drosophila* (Ashburner, M., and T.R.F. Wright, eds.), volume 2a, pp. 1-81. Academic Press, London; Ashburner, M., K.G. Golic, and R.S. Hawley 2005, Cold Spring Harbor Laboratory Press. pp. 162-4; Arun Kumar, N., and B.Y. Satish Kumar 2010, Dros. Inf. Serv. 93: 30-35; Barclay, B.J., B.A. Kunz, J.G. Little, and R.H. Haynes 1982, J. Biochem. Cell Biol. 60: 172-194; Beauchamp, C., and Fridovich 1971, Anal. Biochem. 44: 276-287; Beers, R.F., Jr., and I.W. Sizer 1952, J. Biol. Chem. 195(1): 133-140; Boon, E.M., A. Downs, and D. Marcey 2007, *Catalase Structural Tutorial Text*; Chae, H.Z., S.W. Kang, and S.G. Rhee 1999, J. Methods in Enzymology 61: 219-226; Dallman, M.F., N.C. Pecoraro, and S.E. La Fleur 2005, Brain Behav. Immun. 19: 275-280; F.M. Sirotnak, F.M., 1985, Cancer Research 45(9): 3992-4000, Sarcoma 5; Johnston, A.G., J.E. Udjonsson, H. Sigmundsdottir, B.R. Ludviksson, and H. Valdimarsson 2005, Clin. Immunol. 114: 154-163; Bertino, J.R., 1993, Journal of Clinical Oncology 11(1): 5-14; Mates, J.M., and F. Sanchez-Jimenez 1999, J. Front. Biosci. 4: 339-345; Michiels, C., M. Raes, O. Toussaint, and J. Remacle 1994, Free Radic. Biol. Med. 17(3): 235-48; Mol, F., B.W. Mol, W.M. Ankum, F. Van der Veen, and P.J. Hajenius 2008, Hum. Reprod. Update 14(4): 309-19; Sorensen, J.G., T.N. Kristensen, and V. Loeschcke 2003, J. Ecology Letters 6: 1025-1037; Sowmya, M., and B.Y. Sathish Kumar 2010, Journal of Stress Physiology and Biochemistry 6(4): 18-27; Sun, Y., 1990, Free Radic. Biol. Med. 8(6): 583-99; Teixeira, H.D., R.I. Schumacher, and R. Meneghini 1998, J. Proc. Natl. Acad. Sci. USA. 95: 7872-7875; Tiwari, A.K., 2001, J. Curr. Sci. 81: 1179-1187; Valko, M., C.J. Rhodes, J. Moncol, M. Izakovic, and M. Mazur 2006, Chem. Biol. Interact. 160(1): 1-40; Willner, P., 1986, J. Prog. Neuropsychopharmacol. Biol. Psychiatry 10: 677-690.



### **New records of Drosophilidae in southern Amazônia.**

**Santos, João Pedro Junges dos<sup>1</sup>, Monica Laner Blauth<sup>2</sup>, and Marco Silva Gottschalk<sup>3</sup>.**

<sup>1</sup>Programa de Pós Graduação em Biodiversidade Animal, UFSM, Santa Maria - RS, [jungesj@gmail.com](mailto:jungesj@gmail.com); <sup>2</sup>Instituto de Biologia, Departamento de Zoologia e Genética, UFPel, Pelotas - RS, [monicablauth@uol.com.br](mailto:monicablauth@uol.com.br); <sup>3</sup>Instituto de Ciências Biológicas, FURG, Rio Grande - RS, [gotts007@yahoo.com](mailto:gotts007@yahoo.com).

### **Introduction**

The records in the literature of Brazilian species of the family Drosophilidae show an evident concentration in the South, Southeast, and Center-West regions of the country (Val *et al.*, 1981; Gottschalk *et al.*, 2008). These records cover several environments and different resources for

feeding or oviposition (Medeiros and Klaczko, 2004; Chaves and Tidon, 2005; Schmitz *et al.*, 2007; Gottschalk *et al.*, 2009). A total of 133 species occur in the North region while the South region shows 367 species, with 177 species found in São Paulo State (Gottschalk *et al.*, 2008). The concentration of these records and the shortage of geographical information for several species (Chaves and Tidon, 2008) can result in misinterpretations of the species distributions for Drosophilidae.

In the analysis presented by Gottschalk *et al.* (2008), the species records for the entire North region constitute approximately 45% of the Brazilian records. However, approximately 80% of these records are concentrated in Amazonas and Pará States, leaving several gaps in the distribution of Drosophilidae.

The records of Drosophilidae from Rondonia State include three genera and eight species (Table 1). The purpose of this study is to add new records to the species list of Drosophilidae for this Amazonian State.

Table 1. Drosophilidae species list for Rondonia State.

Genus	Subgenus	Group	Subgroup	Species
<i>Drosophila</i>	<i>Drosophila</i>	<i>cardini</i>	<i>cardini</i>	<i>Drosophila cardinoides</i> Dobzhansky and Pavan, 1943
<i>Scaptodrosophila</i>		<i>latifasciaeformis</i>	-	<i>Scaptodrosophila latifasciaeformis</i> (Burla 1954)
<i>Zaprionus</i>	<i>Zaprionus</i>	<i>armatus</i>	<i>vittiger</i>	<i>Zaprionus indianus</i> Gupta 1970
<i>Zygothrica</i>		<i>bilineata</i>	-	<i>Zygothrica bilineata</i> (Williston 1896)
		<i>dispar</i>	<i>aldrichi</i>	<i>Zygothrica joeyesco</i> Grimaldi 1987
				<i>Zygothrica paraldrichii</i> Burla 1956
				<i>Zygothrica pilipes</i> Hendel 1936
				<i>Zygothrica zygia</i> Grimaldi 1987

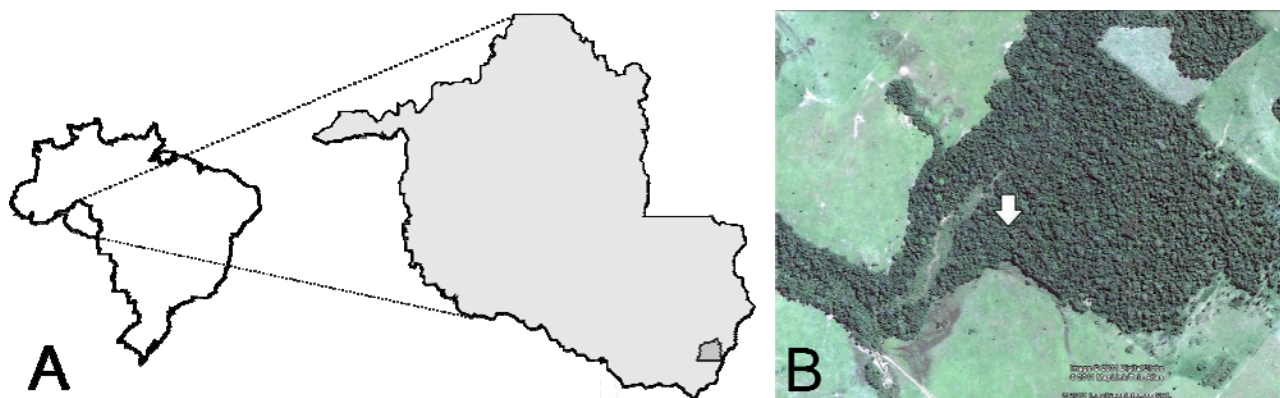


Figure 1. A, Map of Brazil and Rondonia State showing the city of Colorado do Oeste. B, Satellite view of the collection site. Source: Google Earth.

## Materials and Methods

Collections were made between January 11<sup>th</sup> and 14<sup>th</sup>, 2009, in a fragment of the Amazon Forest (13°00'37.7"S; 60°35'24.9"W) at Colorado do Oeste, in the Southeast of Rondonia State (Figure 1). Five banana-baited traps (Tidon and Sene, 1988) were placed along a transect approximately 100 meters in length.

The individuals were identified through external morphology, identification keys, and comparisons with the literature. The species of the males were identified through analysis of the terminalia using the methodology described by Bächli *et al.* (2004).

## Results and Discussion

The collections made in this study included 217 drosophilids belonging to two genera. The genus *Drosophila* was predominant, and only one specimen of *Zaprionus indianus* was found (Table 2).

Burla and Pavan (1953) recorded *D. calloptera* in Porto Velho, Acre State, and Gottschalk *et al.* (2008) cited this record in their revision. However, the record published by Burla and Pavan (1953) should be referred to the location of Porto Velho, in Rondonia state. Therefore, the record of *D. calloptera* obtained in this study is not the first for Rondonia but confirms the occurrence of this species in the state.

Table 2. Abundance of drosophilid species in Colorado do Oeste, state of Rondonia, Brazil.

Species	Number of individuals
<i>Drosophila willistoni</i> subgroup Dobzhansky 1940	177
<i>Drosophila prosaltans</i> Duda 1927	36
<i>Drosophila subsaltans</i> Magalhães 1956	2
<i>Drosophila calloptera</i> Schiner 1868	1
<i>Drosophila malerkotliana</i> Parshad and Paika 1964	1
<i>Zaprionus indianus</i>	1
Total	218

Although this report presents the results of a preliminary collection, it includes five new records for Rondonia State and highlights the need of further development of research in this Brazilian region belonging to the Amazonian biome and shows several gaps remain in the knowledge of the diversity of the Drosophilidae in Rondonia state.

**Acknowledgments:** The authors thank Paulo Lima dos Santos and Marcielly Daiane de Oliveira for help in collecting and Mauricio de Lazari for permission to access his property.

**References:** Bächli, G., C.R. Vilela, S.A. Escher, and A. Saura 2004, The Drosophilidae (Diptera) of Fennoscandia and Denmark. Fauna Entomol. Scand., v. 39. Leiden, Brill, 362 p; Chaves, N.B., and R. Tidon 2005, Dros. Inf. Serv. 88: 25-27; Chaves, N.B., and R. Tidon 2008, Rev. Bras. entomol. 52: 340-348; Gottschalk, M.S., P.R.P. Hofmann, and V.L.S. Valente 2008, Check List 4: 485-518; Gottschalk, M.S., L.E.M. Bizzo, J.S Döge, M.S. Profes, P.R.P. Hofmann, and V.L.S. Valente 2009, Iheringia. (Série Zoologia) 99: 442-448; Medeiros, H.F., and L.B. Klaczko 2004, Biota Neotrop. 4: 1-12; Schimitz, H.J., P.R.P. Hofmann, and V.L.S. Valente 2010, Iheringia (Série Zoologia) 100: 133-140; Tidon, R., and F.M. Sene 1988, Dros. Inf. Serv. 67: 90; Val, F.C., C.R. Vilela, and M.D. Marques 1981, In: *The Genetics and Biology of Drosophila* (Ashburner, M., H.L. Carson, and J.N. Thompson, Jr., eds.), volume 3a, Academic Press, London, pp. 123-168.