Nature Genet. 37**:** 129-137; Stevison, L.S., K.B. Hoehn, and M.A. Noor 2011, Genome Biol. Evol. 3: 830-841; Suzuki, D.T.,A.J. Griffiths, J.H. Miller, and R.C. Lewontin 1986, *An Introduction to Genetic Analysis*, 3rd ed. WH Freeman and Company; Watanabe, T.K., T. Watanabe, and C. Oshima 1976, Evolution 30: 109-118; Watanabe, T.K., and T. Watanabe 1977, Genetics 85: 319-329; Webb, A., B. Miller, S. Bonasera, A. Boxer, A. Karydas, and K.C. Wilhelmsen 2008, Arch. Neurol. 65**:** 1473-1478; White, M.J.D., 1978, *Modes of Speciation*. WH Freeman, San Francisco; Wittkopp, P.J., G. Smith-Winberry, L.L. Arnold *et al*., 2011, Heredity 106: 592-602; Zhimulev, I.F., and D.E. Koryakov 2009, eLS, 1-9.

Checklist of Drosophilid species so far described and recorded from the Darjeeling hill areas, West Bengal, India.

Pradhan, Sushmika[1&2], Rajendra Singh Fartyal[3], and Rabindra Nath Chatterjee[1].
[1]Genetics Research Unit, Department of Zoology, University of Calcutta, West Bengal, India; [2]P.G. Department of Zoology, Darjeeling Government College, Darjeeling, West Bengal, India; [3]UGC-SAP Department of Zoology & Biotechnology, HNB Garhwal University, Chauras Campus, Srinagar Garhwal, UK, India.

Systematic position:

PHYLUM: ARTHROPODA
CLASS: INSECTA
SUBCLASS: PTERYGOTA
DIVISION: ENDOPTERYGOTA
ORDER: DIPTERA
SUBORDER: BRACHYCERA
SUPER FAMILY: EPHYDROIDEA
FAMILY: DROSOPHILIDAE

Subfamily Steganinae

I . Genus *Leucophenga* Mik

1. *Leucophenga rimbikiana* Singh & Gupta, 1981

II. Genus *Stegana* Meigen

2. *Stegana shirozui* Okada, 1971

Subfamily Drosophilinae

III. Genus *Dettopsomyia* Lamb

3. *Dettopsomyia argentifrons* Okada, 1956
4. *Dettopsomyia nigrovittata* Malloch, 1924

IV. Genus *Drosophila*

i. Subgenus *Dorsilopha* Sturtevant

5. *Drosophila busckii* Coquillett, 1901

ii. Subgenus Sophophora

6. *Drosophila melanogaster* Meigen, 1830
7. *Drosophila neoelegans* Gupta & Singh, 1977
8. *Drosophila ananassae* Doleschall, 1858
9. *Drosophila bipectinata* Duda, 1923
10. *Drosophila malerkotliana* Parshad & Paika, 1964
11. *Drosophila parabipectinata* Bock, 1971
12. *Drosophila lucipennis* Lin, 1972
13. *Drosophila tristipennis* Duda, 1924
14. *Drosophila unipectinata* Duda, 1924
15. *Drosophila immacularis* Okada, 1966
16. *Drosophila pulcherella* Tan, Hsu & Sheng, 1949
17. *Drosophila suzuki indicus* Parshad & Paika, 1964
18. *Drosophila takahashii* Sturtevant, 1927
19. *Drosophila trilutea* Bock & Wheeler, 1972
20. *Drosophila kurseongensis* Gupta & Singh, 1977
21. *Drosophila nepalensis* Okada, 1955
22. *Drosophila gundensis* Prakash & Reddy, 1977
23. *Drosophila kikkawai* Burla, 1954
24. *Drosophila punjabiensis* Parshad & Paika, 1964
25. *Drosophila trapezifrons* Okada, 1966
26. *Drosophila suborosa* Kumar & Gupta, 1992

iii. Subgenus *Drosophila* Fallén

27. *Drosophila neomakinoi* Gupta & Singh, 1981
28. *Drosophila novazonata* Gupta & Dwivedi, 1980
29. *Drosophila parazonata* Gupta & Dwivedi, 1980
30. *Drosophila mediobandes* Dwivedi & Gupta, 1980
31. *Drosophila trisetosa* Okada, 1966
32. *Drosophila ramamensis* Dwivedi, 1979
33. *Drosophila bimorpha* Singh & Gupta,1980
34. *Drosophila guptai* Dwivedi, 1979
35. *Drosophila tetradentata* Singh & Gupta, 1980
36. *Drosophila peniclubata* Singh & Gupta, 1980
37. *Drosophila dominici* Dwivedi, 1981
38. *Drosophila immigrans* Strutevant, 1921
39. *Drosophila annulipes* Duda, 1924
40. *Drosophila fuscicostata* Okada, 1966
41. *Drosophila maryensis* Gupta & Dwivedi, 1980

42. *Drosophila setitarsa* Gupta & Dwivedi, 1980
43. *Drosophila pentastriata* Okada, 1966
44. *Drosophila paralongifera* Gupta & Singh, 1981

iv. Subgenus *Siphlodora* Patterson and Mainland

45. *Drosophila* (*Siphlodora*) *lacertosa* Okada, 1956
46. *Drosophila* (*Siphlodora*) *repleta* Wollaston, 1858

v. *Incertae sedis*

47. *Drosophila mukteshwarensis* Joshi, Fartyal and Singh, 2005
48. *Drosophila teresae* Pradhan, 2015

V. Genus *Hypselothyrea* de Meijere

49. *Hypselothyrea guttata* Duda, 1926

VI. Genus *Hirtodrosophila* Duda

50. *Hirtodrosophila fascipennis* Okada, 1967

VII. Genus *Liodrosophila* Duda

51. *Liodrosophila okadai* Dwivedi & Gupta, 1979

VIII. Genus *Lordiphosa* Basden

52. *Lordiphosa acutissima* Okada, 1956
53. *Lordiphosa aurantifrons* Okada, 1984
54. *Lordiphosa neokurokawai* Singh & Gupta, 1981
55. *Lordiphosa parantillaria* Kumar & Gupta, 1990
56. *Lordiphosa coei* Okada, 1966

IX. Genus *Nesiodrosophila* Wheeler & Takada

57. *Nesiodrosophila lindae* Wheeler & Takada, 1964

X. Genus *Scaptodrosophila* Duda

58. *Scaptodrosophila minima* Okada, 1966

XI. Genus *Scaptomyza* Hardy

59. *Scaptomyza tistai* Kumar & Gupta, 1992
60. *Scaptomyza clavata* Okada, 1973
61. *Scaptomyza parasplendens* Okada, 1966

62. *Scaptomyza graminum* Fallén, 1823

63. *Scaptomyza pallida* Zetterstedt, 1847

64. *Scaptomyza elmoi* Takada, 1970

65. *Scaptomyza himalayana* Takada, 1970

XI. Genus *Zaprionus* Coquillett

Subgenus *Zaprionus*

66. *Zaprionus indianus* Gupta, 1970

Chromosomal inversion polymorphism analysis of a population of *Drosophila polymorpha* of the Serra do Tabuleiro State Park, Brazil.

Ramírez, M.F., B. Wildemann, and D.C. de Toni. Departamento de Biologia Celular, Embriologia e Genética – Universidade Federal de Santa Catarina, Florianópolis, Brasil; E-mail: detoni@ccb.ufsc.br.

The Atlantic Rainforest comprises a vegetal formation that covers a great territory of Brazil and also parts of Paraguay and Argentina (Ishiy *et al*., 2009). Due to its coastal location, this is one of the ecosystems that presents a higher risk of extinction. However, this Biome consists on one of the most important reservoirs of biodiversity on the planet. Because of this, the genetic analysis of insect populations as bioindicators in the remaining areas of Atlantic Forest in Santa Catarina State (Brazil) is very timely and is of the utmost importance for the understanding of the Biodiversity of this ecosystem, providing critical information for establishing conservation policies.

One way for assessing genetic diversity is through the analysis and characterization of chromosomal inversion polymorphisms in natural populations. In natural populations of the genus *Drosophila*, chromosomal inversion polymorphisms are frequently observed forming inversion loops, and in high frequency. The most probable explanation of this phenomenon is that while the recombination index is reduced between the alleles contained inside an inversion, the alleles contained inside it are maintained as a block that pass through generations as a unit. This block may be under natural selection and co-adapted to a particular climatic/geographic condition and, thus, they may provide reproductive advantage to his carrier (Dobzhansky, 1970; Anderson *et al*., 2005; Kirkpatrick and Barton, 2006). In addition, in *Drosophila*, the presence of chromosomal inversions provoke no reduction of fertility (Krimbas and Powell, 1992).

Heterozygous chromosomal inversions are easily observable in polytene chromosomes, present in the salivary glands of the larvae of flies. The polytene chromosomes present a series of bands of heterochromatin and puffs that are species specific, so the characterization and localization of the inversion loops are possible. *Drosophila polymorpha*, the species studied in this work, have 18 paracentric inversions described so far (Rohde and Valente, 1996; Cordeiro *et al*., 2014).

The objective of this study was to analyze the polytene chromosome polymorphisms of a *Drosophila polymorpha* population of a primary formation of the Serra do Tabuleiro State Park (27°44'48"S; 48°48'43"W), Brazil (Figure 1). This park is the biggest conservation area of the Santa Catarina State, comprising almost 1% of his territory. The flies were captured in the field using traps designed by Roque *et al*. (2011) and cultured in the laboratory. Isolines from single females of *D. polymorpha* were founded, using the medium described by Bizzo *et al*. (2012). Species were determined and confirmed from the analysis of the F1 male genitalia.