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A species spectrum of *Montium*-Subgroup of *Drosophila* Species from different Geographical Regions of Uttar Pradesh in India

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Abstract

The present investigation deals with species spectrum of montium- subgroup of Drosophila flies were collected from different geographical localities of Uttar Pradesh in India during different seasons by using fermented banana baits. The flies were collected from Munsiganj and Lalganj from Raebareli District; Kalakankar and Mangarh from Pratapgarh; Bighapur and Navabganj from Unnao and Pallia and Dudhawa from Lakhimpur District of Uttar Pradesh in India. The flies were collected and kept in 70% alcohol. Male and Female flies were grouped on the basis of morphological characters and analyzed taxonomically on the basis of genital structure. In the present study we focused on only montium-subgroup of Drosophila species. In this group we find Drosophila jambulina, D.kikkawai and D.punjabiensis from different geographical regions of Uttar Pradesh in India.

Keywords: Species spectrum; montium subgroup; Drosophila species; geographical regions.

Introduction

Among various environmental factors, climatic variable import key to distribution of *Drosophila* species and inter specific variation in resistance to abiotic stress can help us to predict about their distribution and mechanism of adaptation in nature described by Anderson et.al.1; Joshi2; Parson3,4; Service5. The montium–subgroup in the melanogaster species group of *Drosophila* is the most number because of being the largest in species group and also in having several example of sibling species. These *Drosophila* species have been reported to be the most common and widely distributed species from subtropical forest and urban areas of the India described by Gupta6.

Material and Methods

The experiment was performed in the forest regions of Utter Pradesh in India immediately after rainy and cold seasons for different years and using trap bait method were used for flies collection. The collection were performed Munsiganj and Lalganj from Raebareli District; Kalakankar and Mangarh from Pratapgarh District; Bighapur and Navabganj from Unnao District and Pallia and Dudhawa from Lakhimpur District of Uttar Pradesh in India. The flies were preserved in 70% alcohol and all the male and female flies were grouped on the basis of distinguished morphological characters and analyzed taxonomically on the basis of genital structure adopting the method of McAlpine⁷.

Results and Discussion

The field collection from different geographical regions of Uttar Pradesh, the drosophilid flies were collected in different seasons have yielded a total of 8136 flies during September 2010 to September 2013 in table-1. The total no. of male flies are 3799 and female flies are 4337 in table-3. The males were grouped on the basis of morphological characters and analyzed taxonomically on the basis of genital structure. The taxonomic analysis on the basis of genital structure and helped us to identify drosophilid flies. In this collection we only focused on montium subgroup of drosophila flies. The identified montium species are *Drosophila jambulina; D. kikkawai* and *D. punjabiensis* in table-2.

 Table-1

 Total number of Drosophila flies collected of montiumsubgroup of flies collected in different seasons from Uttar Pradesh in India

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Collection Season	Total no. of montium-subgroup of <i>Drosophila</i> flies					
September 2010	1094					
February 2011	845					
September 2011	1289					
February 2012	992					
September 2012	1393					
February 2013	1045					
September 2013	1478					
Total No. of Flies	8136					

Conclusion

Among the species of montium subgroup of drosophilid flies, Drosophila punjabiensis were collected in large number then D. kikkawai and D. Jambulina in less numbers in table-2. Another interesting noticed during these collections were occurrence of large number of flies were collected during after rainy season than after cold season. These observation clearly indicate that the variation in species spectrum and species distribution depend largely upon capabilities of resource utilization , i.e. fermented fruits and natural decays in different geographical conditions and in different seasons according to Dobzhansky and DaCunha8; Gupta, 9 and Kumar and Kumar¹⁰.

Table-2 Total number of Drosophila flies collected of montium subgroup of flies collected in different seasons from Uttar

Pradesn in India									
Name of Species	Sep.	Feb.	Sep.	Feb.	Sep.	Feb.	Sep.	Tatal	
	2010	2011	2011	2012	2012	2013	2013	Total	
D.jambulina	211	190	276	185	305	176	298	1641	
D.kikkawai	368	246	395	290	408	312	468	2487	
D.punjabiensis	515	409	618	517	680	557	712	4008	
Total no. of montium subgroup of Drosophila flies							8136		

Table-3

Total number of male and female flies of montium-subgroup of *Drosophila* species collected from different localities of Utter Pradesh in India

Name of Species	Locality	No. of Male	No. of Female	Total no. of Flies	
	Munsiganj	67	75	142	
	Lalganj	93	99	192	
	Kalakankar	45	52	97	
	Mangarh	87	95	182	
D.jambulina	Bighapur	68	76	144	
, , , , , , , , , , , , , , , , , , ,	Navabganj	112	112	234	
	Pallia	87	94	181	
	Dudhawa	226	243	469	
	Total	785	856	1641	
D.kikkawai	Munsiganj	87	109	196	
	Lalganj	109	126	235	
	Kalakankar	123	148	271	
	Mangarh	144	182	326	
	Bighapur	113	129	242	
	Navabganj	181	213	394	
	Pallia	159	184	343	
	Dudhawa	202	278	480	
	Total	1118	1369	2487	
D.punjabiensis	Munsiganj	182	206	388	
	Lalganj	198	219	417	
	Kalakankar	203	232	435	
	Mangarh	195	218	413	
	Bighapur	216	234	450	
	Navabganj	276	289	565	
	Pallia	194	217	411	
	Dudhawa	432	497	929	
	Total	1896	2112	4008	
Total		3799	4337	8136	

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