Bulletin of Environment, Pharmacology and Life Sciences Bull. Env. Pharmacol. Life Sci., Vol 5 [12] November 2016: 71-77 ©2016 Academy for Environment and Life Sciences, India Online ISSN 2277-1808 Journal's URL:http://www.bepls.com CODEN: BEPLAD **Global Impact Factor 0.533** Universal Impact Factor 0.9804

ORIGINAL ARTICLE



Pollen Survey of Mahatma Jyotiba Phule Campus RTMNU Nagpur

*Pohekar H.R.¹and S.A. Kalkar²

Department of Botany, Institute of Science ,Nagpur-440001(M.S.) India.

Émail. : hrpohekar@gmail.com

ABSTRACT Airborne Pollen survey of Nagpur, was carried out for a two consecutive years i.e. Jan -2008-Dec-2009 at Mahatma Jyotiba Phule campus, RTM Nagpur University situated 5 km away from zero mile stone. Air-borne pollen were trapped using rotorod air sampler. Results delineate a rich cosmopolitan assemblage of pollen of local and distant origin, some of which bear allergic significance. Based on the data available a pollen calendar was constructed. The pollen calender indicated that there is no pollen free month which is ideal of the tropics. The atmosphere was dominated by the members of Poaceae (66.11%), Cyperaceae(49.71%), Achyranthes aspera (15.09%), Brassica campestris (12.51%), Lantana camera (10.52%), Xanthium strumarium (8.32%) and Alternathera sesilis (6.89%). It was evident that some pollen were dominant moderate & minimum percentage. The pollen data were also correlated with the meteorological parameters such as temperature, relative humidity and rainfall. **Keywords**: Pollen, RTMNU

Received 15.08.2016

Revised 16.09.2016

Accepted 17.10.2016

INTRODUCTION

Atmospheric pollen forms a very significant part of the pollen survey. Providing us information of pollen periodicity and dispersion, some air borne pollen are proven causative agents for respiratory allergy and other respiratory disorders [1].

A review of literature reveals that systematic aeropalynological surveys to identity the local allergic pollen have been done in different parts of the world[2-5]. However in India, extensive work appears to have been concentrated only in a few limited geographical centres, vast areas and climatic zones yet remained unexplored. One such centre is Nagpur. Therefore a survey of relative abundance of atmospheric pollen in general, in Mahatma Jyotiba Phule campus RTMNU Nagpur, was carried out with a view to identify dominant and significant pollen of allergic importance.

MATERIALS AND METHODS

A daily survey of air-borne pollen was undertaken from January -2008 to December -2009 using a rotorod air sampler.

The present Rotord sampler was modified by [6] original [7] model. The devise relies upon the high efficiency with which small airborne particle is deposited on narrow brass rods.

After exposure the tape is removed, mounted beneath a cover glass with the help of glycerin Jelly for the microscopic examination. The pollen grains were identified on the basis of reference slides prepared out of local vegetation. The incidence of pollen was expressed as total number of each species & pollen/m³ of the trapping surface of cellophane tape. A pollen calendar was prepared with a month interval of each species.

The meterological data such as temperature rainfall & relative humidity was collected from India meteorogical department Regional meterological centre, Airport, Nagpur.

Study Area :- Mahatma Jyotiba Phule Campus, Rashtrasant Tukdoji Maharaj University Nagpur. This area is well connected to the roads with beautifully grown avenue trees. NH6 is connected to the area . This area is mostly covered by Herb, Shrubs & trees and Aeropalynoflora was selected as Study area is 5 km away from Zero mile stone.

RESULTS AND DISCUSSION

Total of 33375/M³ were recorded and classified into 27 types of which 16 belongs to Herbs, 3 Shrubs and 7 trees. (Table 1-2) These pollen types belong to 18 Entomophilous, 5 Anemophilous and 3 Amphilous mode of pollination. In two years study 2 monocotyledonous and 24 Dicotyledonous pollen grain were recorded.

In three years study of air around pune by [8] pollen of 20 monocotyledonous and 21 dicotyledonous plants were recorded, [9] while surveying aerial pollen flora at Bareilly and at other places in Gangetic

region found that pollen of Cyperaceae, Poaceae among monocotyledonaus and *Azadirachta, cannabis, Chenopodium, Morus* and *Ricinus* among dicotyledonous, were dominant in the air.

Table 1: Month wise Contribution of Pollen grain/M³ during January 2008 to December 2009 fromIndoor (Mahatama Jyotiba Phule Campus RTM Nagpur University)

	Spore type	year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Total no. of spore/M3	Percentage
		2008	9	2	3	1		1			10	1	2	14	43	215	5.90
1	Achyaranthes aspera	2009	10				2		1		11	2	1	12	39	195	6.02
		2008			6	4			1	2					21	105	2.88
2	Azadirachta indica	2009	2	1	5	3	8		4			3			27	135	4.17
		2008	8	1	7		9			9	1	10	1		39	195	5.35
3	Brassica campestris	2009	5	2	4		1	1		6		8	2		30	150	4.63
		2008	3	5	3	8	2		20	31	30	31	10		165	825	22.66
4	Cyperaceae	2009	4	7	6	10	7	9	15	17	22	20	9		132	660	20.40
		2008	2	1			7	11					2	1	5	25	0.68
5	Evolvulus alsinoid	2009	1	2									3	8	8	40	1.23
		2008	2		3	1					1	2	2	4	12	60	1.64
6	Labiatae	2009	1		2	1					3	1	1		12	60	1.85
		2008	1	1								2	3	2	7	35	0.96
7	Leucas aspera	2009	2									1	3	1	6	30	0.92
		2008			2	10							2	3	31	155	4.25
8	Mimosa pudica	2009				15							1		36	180	5.56
		2008	10	15	20	21	8	10	16	13	16	20	15		177	885	24.31
9	Poaccae	2009	15	12	23	28	15	12	14	14	18	22	14		205	1025	31.68
		2008	2	3								2	1		8	40	1.09
10	Sonchus	2009	1	2	8							3	2	17	8	40	1.23
	Xanthium	2008			10		11		1	3	3			20	26	130	3.57
11	strumarium	2009	10				14				2			13	26	130	4.01
	Bouaainvila	2008												18	10	50	1.37
12	spectabilis	2009					8								8	40	1.23
		2008											10		10	50	1.37
13	Tridax procumbens	2009												8	8	40	1.23
		2008			10	5	7								22	110	3.02
14	Polyalthia longifolia	2009			4	3									7	35	1.08
	Alternanthera	2008	10			8						3	6	10	37	185	5.08
15	sessilis	2009	3			1						2	4		10	50	1.54
		2008	1	1	3	5				2	1	1			14	70	1.92
16	Argemone mexicana	2009				2	1	3			1				7	35	1.08
		2008								2	2				4	20	0.54
17	Cassia tora	2009									1				1	5	0.15
		2008		1	1										2	10	0.27
18	Butea monosperma	2009			1										1	5	0.15
		2008		2	2	1				3	4	5	1		18	90	2.47
19	Lantena camera	2009	5	4	10		1	1		6	7	5	4	6	47	235	7.26

	Spore type	year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Total no. of spore/M3	Percentage
20	Ζ	2008						1	1						2	10	0.27
		2009							1						1	5	0.15
21	Zizyphus Jujuba	2008							8	11					19	95	2.60
	j · j · · · · ·	2009							5	3					8	40	1.23
22	Acacia nilotica	2008		2	1	6									9	45	1.23
		2009															
23	Hibiscus –	2008				1	2		3						6	30	0.82
	rosa- sinesis	2009			2										2	10	0.30
24	Tephrosia	2008									10	15			25	125	3.43
	parparea	2009									4				4	20	0.61
25	Tectona grandis	2008									20				20	100	2.74
		2009															
26	Sida cordifolia	2008									1	2	1		4	20	0.54
		2009								1		1			2	10	0.30
27	Unidentified	2008	1	2	1					1		1	2		9	45	1.23
	pollen grains	2009	2	1	3		1		1			2	2	1	14	70	2.16
	Total	2008	59	35	70	70	44	22	50	77	99	80	58	2	728	3240	
		2009	51	31	70	63	59	26	40	47	69	70	46	64	647	3235	
	Percentage	2008	8.10	4.80	70	9.61	6.04	3.02	6.86	10.57	13.59	10.98	7.96	75	99.83		
		2009	7.88	4.79	9.61	1081	9.11	4.01	6.18	7.26	10.66	10.81	7.10	8.79	99.93		

Table 2 : Month wise Contribution of Pollen grain/M³ Recorded during January 2008 to December2009 from outdoor environment of Mahatma Jyotiba Phule Campus RTM Nagpur University.

	Spore type	year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Total no. of spore/M3	percentage
		2008	15	2	1	3	1	4		2	18	2	3	20	71	355	2.59
1	Achyaranthes aspera	2009	10	1	4	1	5	1		4	17	1	5	13	62	310	2.34
		2008			12	3	11	5		1	4				36	180	1.31
2	Azadirachta indica	2009	1	3	13	4	20	17				2			60	300	2.26
		2008	15		12			1		15		14			57	285	2.08
3	Brassica campestris	2009	8		11		2			11		16			48	240	1.81
		2008	2	7	4	8	15	7	13	21	26	12	4	3	122	610	4.46
4	Cyperaceae	2009	7	10	6	11	10	17	32	35	52	36	9	7	232	1160	8.76
		2008		1									1		2	10	0.07
5	Evolvulus alsinoid	2009	1	2									3	2	8	40	0.36
		2008	1		1	2					1	2			7	35	0.25
6	Labiatae	2009	3		1	2					2	6	4	6	24	120	0.90
7	Leucas aspera	2008	1									1	1		3	15	0.10

					2009		2								2	1		5	25	0.188	
					2008			4	8							3	15	30	150	1.09	
	8	Min	nosa Pua	lica	2009		1		9							4	20	34	170	1.28	1
	0	1.111	1050 1 00	iicu	2008	20	25	18	23	27	10	18	15	11	17	15	2.4	213	1065	7.79	1
	0	D			2000	10					25			20	1.0			247	1005	0.00	
	9	Poa	ccae		2009	18	23	21	24	25	25	22	16	20	16	14	23	24/	1235	9.33	-
					2008	1	3								3	4		11	55	0.40	
	10		Sonchus		2009	2	2								1	2		7	35	0.26	
		X	lanthium	1	2008			4		6		2	3	4				19	95	0.69	
	11	st	rumariu	m	2009			3		2				1				6	30	0.22	1
					2008			-			20							20	100	0.73	1
	12	Bo	ougainvi nootabili	la	2000					0								0	40	0.20	1
	12	5	pectubili	5	2009					0						20	10	30	150	1.00	1
					2000											20	10	30	150	1.09	
	13	Trida	x procun	nbens	2009											5	15	20	100	0.75	
					2008			8	7	3								18	90	0.65	
	14	Polyal	thia long	gifolia	2009			4	5	2								11	55		
	15	4.14			2008	5			3						2	5	4	19	95	0.69	
	15	Alt	ernantne	era	2000	1										1	2	- 1	20	0.16	1
			56221112		2009	2	1	2	3				1	1	2	1	2	12	60	0.10	1
					2000	2	1	2	5	-			1	1	2			12	00	0.45	
	16	Argen	попе тех	ticana	2009				1	2	1		2	2				6	30	0.22	
					2008								3	1				4	20	0.14	
	17	С	assia tor	a	2009								2	1				3	15	0.11	
					2008		2	3										5	25	0.18	
	18	Buteo	monosp	erma	2009			3									1	3	15	0.11	1
					2008		1	3	1				2	2	3	1		13	65	0.47	1
													-								
	10	Lan	tona can	0.000	2000	6	1	5					1	5	1	2	1	24	170	1 2 0	
	19	Lan	tena can	nera	2009	6	4	5					4	5	4	2	4	34	170	1.28]
	19	Lan	tena can	nera	2009	6	4	5]	4	5	4	2	4	34	170	1.28]
	19	Lan	tena can	nera	2009	6	4	5					4	5	4	2	4 5-	34	170	1.28	
	19 type	Lan	tena can	nera	2009	6 43	4	5		e	<u> </u>	ıst	4	nber 5	4 Jac	2	4	34	170 	1.28 Jo . of W/	Itage
	19 19	Lan	tena cam	nera Auranu	pruary	larch 9	4 lind	5 Mav		lune	July	ugust	4	tember	tober 4	2	4 vember	34 cemper	Lotal	al no. of 1.58	centage
	Spore type	Lan	tena can	January	February	March	4 April	2 Mav		June	July	August	4	September 5	October 4	2	A November	December	Total Total	Total no. of spore/M3	Percentage
	Spore type	Lan	tena can Near	lanuary	6005 February	9 March	4 Iinde	5 Naw	6	June	July	August	4	September	October 4	2	4 4	Jecember	Total	Total no. of spore/M3	Percentage
20	19 Spore type Ann	Lan	rear Teay 7	lera Jannary	February	March	4 April	5 Naw	6	June	July	August	4	September	October 4	2	4 4	December	170 Total	Total no. of spore/M3	Percentage
20	19 Spore type Ann squa	Lan ona mosa	Lee a can Lee a 2008 2009	lera Jaunary	February	March	4 April	5 veW		June	Amf 10	August	4	September	4 October	2	4 A November	Decemper	170 Lotal 1 1	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Percentage 80.0
20	19 adote type Spore ty	Lan iona mosa phus	tena can Itea 2008 2009 2008	lera Jaunari Januari	ebruary February	March	4 April	5 Aaw		June	Am 10 10	August 12	4	September	0 October	2	4 November	34 Decemper	170 L 1 1 25	1.28 Jo . on lot of spore/M3 5 5 125	Percentage Percentage 16.0
20 21	19 Sboue till S Ann squa Zizy, Juju	Lan tona mosa phus uba	Lena can Lena can 2008 2009 2008 2009	lera fannary	Eebruary	March	4 April	5 ABM		June	А́ра 10 10 1	August 12	4	September	0 October	2	4 November	Decemper	170 L 1 1 25 5	1.28 Joore/M3 Sbore/M3 25 25	Percentage Percentage 160.0 81.0
20 21 22	19 addition of the second seco	Lan oona mosa phus uba acia	Lega can 2008 2009 2008 2009 2008	lera	Eebruary	6 March	4 liudy		far.	June	April 10	August 4	4	September	4 October		4 November	Decemper	170 I I I I I I Z 5 7	1.28 1.28 Joore/W3 Sbore/W3 25 25 35	Base ut and a second se
20 21 22	19 additional addition	Lan ona mosa phus uba ncia tica	Leena can Leena can 2008 2009 2008 2009 2008 2009 2008 2009	lera	Eebruary February	6 Warch	4 liudy	5	4	June	April 6	August 4	4	September	4 October	2	4 November	Decemper	170 I 1 1 1 25 5 7 5 7 5 -	1.28 1.28 2010 o. of 25 25 25 25 25 25 25 25	Det.centage 0.03 0.91 0.18 0.25 0.18
20 21 22 23	19 additional addition	Lani iona mosa phus uba icia icia itica scus -	Leena can Leena can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009	Arran	Eebruary	6 Warch	4 liudy 1 3 2	5 AeW	1 1	June	10 10 1	August 4	4	September	4 October		4 Vovember	Decemper	170 I 1 1 1 25 5 7 5 7 5 7 2	1.28 1.28 1.28 20 10.0 25 25 25 25 25 25 25 25 25 25 25 25 25	0.03 0.03 0.91 0.18 0.25 0.18 0.25
20 21 22 23	addi addi au Squa Zizy, Juju Acc nilo Hibis rosa -	Lan ona mosa phus uba acia tica scus - sinesis	Lee a can Lee a can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009		Lebruary February	6 Warch 3	4 liudy 1 3 2	5		June	λ[m] 10 10	Handard Handar	4	September	4 October		A November	Decemper	170 F T T T T T T T T T T T T T	1.28 Joou even with a second s	0.03 0.03 0.91 0.18 0.25 0.18 0.25 0.10
20 21 22 23 24	19 addifi a.ood Squa Zizy, Juju Acco nilo Hibbis rosa - Tecc	Lani nona mosa phus uba tica tica scus - sinesis tona	Lee a can Lee a can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008		Lebruary 1	6 Warch 3	4 Interview 4	5 New 1	4	June	Am 10 10	August 4	4	2 September	0 October			Decemper	170 Teta 1 1 1 1 25 5 7 5 7 5 7 3 8	1.28 Jo columno 5 125 25 35 25 35 25 35 15 40	0.03 0.03 0.91 0.18 0.25 0.18 0.25 0.10 0.29
20 21 22 23 24	19 addii auod Squa Zizy, Juju Acc nilo Hibbis rosa - Tecc gra	Lani oona mosa phus uba tica tica scus - sinesis tona ndis	Leena can Leena can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009		Lebruary February	6 Warch 3	4		4	June	А́т (10 10	August 4	4	Septemper Septemper	4 October		A November	Decemper	170 Teta 1 1 1 1 25 5 7 5 7 3 8 10	1.28 Joou even of the second s	0.03 0.03 0.03 0.91 0.18 0.25 0.10 0.29 0.36
20 21 22 23 24 25	19 addifield ann squa Zizy, Juji Acconilo Hibbis rosa - Tecco gra Si	Lani nona mosa phus uba tica scus - sinesis tona ndis da	Lega can Lega can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008		Lebruary 1	6 Warch 3	4		4	June	Am 10 10	August 4		2 Septemper	4 00toper			Decemper	170 Teta 1 1 1 25 5 7 5 7 3 8 10 4	1.28 Jo con con constant of the second seco	0.03 0.03 0.91 0.18 0.25 0.18 0.25 0.10 0.29 0.36 0.14
20 21 22 23 24 25	19 addified ann squa Zizy, Juju Acconilo Hibbis rosa -: Tecci gra Sir Cord	Lani nona mosa phus uba tica tica scus - sinesis tona ndis da ifolia	Lee a can Lee a can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008		Lebruary 1	6 Warch 3	4			June	Am 10 10	August Au		2 Septemper	4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				170 Teta 1 1 1 25 5 7 5 7 5 7 3 8 10 4 2	1.28 Jo con con constant of the second seco	0.03 0.03 0.91 0.18 0.25 0.10 0.29 0.36 0.14 0.07
20 21 22 23 24 25 26	19 ad fr: 2000 2000 2000 2000 2000 2000 2000 20	Lani oona mosa phus uba tica tica scus - sinesis tona ndis da ifolia ntified	Lega can Lega can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008		2009	6 Warch 3 4	4		4	June		August Au		2septemper Septemper 8 10 1 3	4 00toper 2 1 2		I A A A A A A A A A A A A A A A A A A A	1 34	170 Teta 1 1 1 25 5 7 5 7 5 7 3 8 10 4 2 34	1.28 Jo Comparison of the second sec	0.03 0.03 0.91 0.18 0.25 0.10 0.29 0.36 0.14 0.07 1.24
20 21 22 23 24 25 26	19 addified ann squa Zizy, Juji Acconilo Hibbis rosa -: Tecca gra Si Cord Unide pollem	Lani nona mosa phus uba rcia tica scus - sinesis tona ndis da ifolia ntified	Lega can Lega can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008		2009	6 Warch 3 4 4	4	5		June		August 4		2 Septemper	4 000000		I A A A A A A A A A A A A A A A A A A A	34 Jacobia Decemper 1 3 1	170 Image: constraint of the second seco	1.28 Jo con con constant of the second seco	800 err err err err err err err e
20 21 22 23 24 25 26	19 ad. fi a. oc gc Ann squa Zizy, Juju Acc nilo Hibis rosa -: Tecc gra Si Cord Unide pollen grains	Lani nona mosa phus uba tica sinesis tona ndis da ifolia ntified	Lega can Lega can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009	Area Area Image: Area	2009 Leonard	6 Warch 3 3 4 2 2 1 3 3	4 [Lidy 4 1 3 2 2 5 5 1			June June Z		Angular Angula		5 Septemper 8 10 1 3 1	4 000000		Language And	34 Jacobia Decemper 1 3 1	170 Tet of 1 1 1 25 5 7 7 5 7 7 3 8 10 4 2 34 20	1.28 Jo con con constant of the second seco	age bin 0.03 0.03 0.91 0.18 0.25 0.18 0.25 0.10 0.29 0.36 0.14 0.07 1.24 0.75
20 21 22 23 24 25 26	19 additional addition	Lani nona mosa phus uba tica sinesis tona ndis da ifolia ntified	Lena can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008	hera Å. hera he	2009 A Grant A Grant	6 Warch March 4 2 2 1 3 3 2 1 2 1 2 1 8 2 18	4 [Lidy 4 1 1 3 2 2 5 5 1 1 227		4	euní 		Handbox Handbo		5 Septemper 8 10 1 3 1 403	4 		1 4 72	34 Jacobia Decemper 1 3 1 3 1 145	170 Tet of 1 1 1 25 5 7 7 5 7 7 3 8 10 4 2 34 20 2734	1.28 Jo . 00 Jo . 00 J	and the second
20 21 22 23 24 25 26	19 additi auditi	Lani nona mosa phus uba tica sinesis tona ndis da ifolia ntified	Lee a can Lee a can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008	Arena	2009 Leopinary 1 3 2 188	6 Warch March March A 2 1 3 3 4 2 2 18	4 [Lidy 4 1 1 3 2 1 1 2 1 2 2 1 2 2 2 1 2 2 2 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2		2 	aun ()	▶ = 10 10 1 1 190	Handbox Handbo		5 Septemper 2 8 10 1 3 1 403	4 Lagotope Cotope 2 1 2 1 357		Laggenda (1997)	1 34 Jecemperators	170	1.28 Jo. 00 0.00 125 25 35 125 25 35 15 40 50 20 10 170 100 13670	and the second
20 21 22 23 24 25 26	19 addi sound squa Zizy, Juju Acconilo Hibbis rosa - Tecto gra Sir Cord Unide pollen grains Total	Lani mona mosa phus uba tica sinesis tona ndis da ifolia ntified	Lee a can Lee a can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008	Arena Arena	2009 Lepting Lepting 1 1 1 1 1 1 1 1 1 1 1 1 1	6 	4	5 ∧re≫	4 1 7 4 93 60	au Jun 2 190 199	10 10 10 1 1 90 189	High and the second sec		5 September 3 10 1 3 1 403 406	4 La of the second sec		1 1 4 2 72 446	134 	170 Terminal for the second s	1.28 Jo KW i or KW	Boo 0.03 0.03 0.91 0.18 0.25 0.18 0.25 0.10 0.29 0.36 0.14 0.07 1.24
20 21 22 23 24 25 26	19 additional and a second sec	Lani nona mosa phus uba tica sinesis tona ndis da ifolia ntified	Lee a can Lee a can 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008 2009 2008	Arran	2009 Leptanary Lepta	6 	4 ILLING V ILLIN V ILLIN V ILLIN V ILLIN V ILLIN V ILLIN V ILLIN V ILLIN V ILLIN V I	5 ∧re≫	4 7 4 93 60 05	end end end end end end end end end end	10 10 10 1 1 190 189 6.94	Hind Hand Hand Hand Hand Hand Hand Hand Ha		5 Sebtemper 2 Sebtemper 3 10 1 3 1 400 14.74	4 La of the second sec		1 1 4 2 72 46 .29	1 1 1 145 206 5.30	170 170 1 1 1 25 5 7 5 7 5 7 3 8 10 4 2 34 20 2734 2646 99.93	1.28 Jo KW Jo KW Jo CW Jo CW Jo CW Jo CW Jo CM Jo	and the second

Fig. 1 : Monthly variation of dominant pollen grains from Indoor during January 2008 – December 2008



Fig. 2 : Monthly variation of dominant pollen grains from Indoor during January 2009 - December 2009



Fig. 3: Monthly variation of dominant pollen grains from Site – A* Outdoor during January 2008 -December 2008







* - Mahatma Jyotiba Phule Campus, RTM Nagpur University





Habit wise Analysis of pollen contribution showed maximum percentage of herb followed by trees and shrubs . A small fraction airborne pollen flora remained unidentified. The percentage contributions are related to the pollen contribution made by the constituent species of each plant group, Herbaceous plant species belonged mainly to Amaranthaceae, Cruciferae, Cyperaceae, Labiatae, Mimosaceae, Poaceae and Asteraceae. These Families contributed the highest pollen concentration. The lower pollen contribution by tree might be due to the low frequency of occurrence and short flowering period by the plants belonging to these groups . These results are similar to those reportd by previous workers [10, 11]. The classification of pollen grains followed by maximum, moderate & minimum on the basis of percentage [12].

At this site the dominant pollen was found to be of Poaceae (66.11%) Cyperaceae (22.66%) Lantana camera (10.52%), Mimosa pudica (11.22%), Brassica campestris (12.51%), Achyranthus aspera (15.09%), Xanthium strumarium (8.32%) and Azadirachta indica (8.92%) during the years 2008-2009 by sampler method, (Fig.05). The moderate percentage at this site was found to be of Alternanathera sessilis (6.89%), Zyzyphus jujube (4.78%), Annona squamosa (4.17%), Polyalthia longifolia (3.80%), Tephrosia

purpurea (3.73%), labiatae (3.56%), Argemone Mexicana (3.48%) and Tectona grandis (3.15%). The minimum percentage was found in Sonchus (2.78%) followed by Evolvulus alsinoid (2.07%), Lucas aspera (2.02%), Bougainvila spectabilis (1.91%), Acacia nilotica (1.54%), Hibicus-rosa-sinersis (1.39%), Sida cordifolia (0.99%), Cassia tora (0.85%), Butea monosperma (0.62%), Tridax procumbens (0.43%) and unidentified pollen grains (4.81%) during the small period, (Table 1- 2).

The significant effect of meteorological factors on pollen counts is well documented in the literature [13, 14]. In the present study, considering whole years data, no significant correlation between daily pollen counts and meteological factors were shown however, analysing daily pollen and meterogical data for each month separately indicated significant correlations.

The warm, dry season stimulates flowering in some tree taxa [15] and aids in dehiscence [16, 17] Accordingly a high total count was observed from April to July when there was an increase in temperature and decrease in relative humidity.

Many authors have concluded that the relationship between rainfall and pollen concentration is negative i.e. it washes all the Pollen from the atmosphere and simultaneously also preventing the pollen release from the plants (18). However this study have shown rainfall had very little significant correlation.

CONCLUSION

Monitoring of the pollen in the atmosphere thus provides a guide to the clinician in the diagnosis and treatment of respiratory allergy caused by pollen.

ACKNOWLEDGEMENTS

One of the authors is thankful to UGC for Financial Assistance for Minor research Project "Aeropolynoflora of Nagpur City" (File no. 47-358/07(WRO).

REFERENCE

- 1. H.K.P. Devadoss, V.Annad Gideon and T.Pankajavalli,(2005). Pollen survey from suburbs of madras 40:47, *Aerobiology*.
- 2. Chanda, S and S. Mandal . (1980). Aerobiology in India with reference to upper respiratory tract allergy and organic environmental pollution In : *Proceedings of the 1st International Conference on Aerobiology ed. federal Environmental Agency*. p.p.288-306.
- 3. Singh A.B. (1987). Air borne Pollen types of allergenic significance in India In : *Advances in Aerobiology. Proceedins of the 3rd International conference of Aerobiology*.eds. G.Boehim and R.M. Leuschner, pp.61-64.
- 4. D'Amato, G. and F.Th.M.Spieksma. (1991). Allergenic Pollen in Europe, *Grana* 30:67-70.
- 5. D'Amato,G.,F.Th.M.Spieksma and S.Bonini (eds).*Allergenic Pollen* and *Pollinosis* in *Europe*. Blackwell Sci. Publ.Oxford.240,1991.
- 6. Harrington, J.B., (1959). High Efficiency Pollen Sampler For use in clinical allergy *J. Allergy 30*: 357-375.
- 7. Perkins, W.A.(1957). The Rotorod Sample, 2nd Semi Annual Rept. Aerosol lab Deptt. Chemistry and chemical Engg. Standford wnir.CML 186:66.
- 8. Chaubal. P.D.and Deodikar, G.B., (1964). Airborne Spores around poona J.Poona Univ. 26:123-136.
- 9. Kumars. (1984). Aerial Pollen Flora of Bareilly and at other places in Gangetic region (Northern India)-A comparative Study *J. Palynol Vol.20(1)* 81-86.
- 10. Oommachan, M.Mishra, R.P.Judah, S.P. and Singh , A.B. (1996). Qualitative seasonal variation in the atmospheric pollen flora of Jabalpur. *Indian J. Aerobiol.* 9 (1 and 2) : 1-4.
- 11. Sudha , P. and Agashe, S.N. (1996). A report on seasonal periodicity of pollen grains in Bangalore. *Indian J.Aerobio-9 (1 to 2)*: 5-8.
- 12. Pund S.B. (2002). Aeropalynoligical Study of Amravati (M.S.), Ph.D. Thesis, Sant Gadge Baba Amravati University, Amravati .
- 13. Halwagy, M.H. (1988). Concentration of airborne Pollen at three sites in Kuwait Grana 27(1):53-62.
- 14. Keynam, N.Waisel, S, Showmar-ilan A., Goran, A., and Brener S. (1991). Annual variations of airborne Pollen in the costal plain of Isracl *Grana* 30:477-480.
- 15. Rogers, C.A. (1993). Application of aeropolynoligical principles in palaeoecologuy. *Rev.Palaeobot.polyno.*79:133-140.
- 16. Ljungkvist, S.B.Bringflet and U.Fredriksson. (1977). Correlation between the Pollen contents of Stockholm air and meteorological data *.Grana 16*:145-146.
- 17. Solomon, A.M.(2000). Source and characteristics of air borne materials In : Aerobiology 52-65.
- 18. McDonald, M.S. (1980). Correlation of air-borne grass pollen levels with meteorological data Grana 19:53-56.

CITATION OF THIS ARTICLE

Pohekar H.R. and S.A. Kalkar. Pollen Survey of Mahatma Jyotiba Phule Campus RTMNU Nagpur. Bull. Env. Pharmacol. Life Sci., Vol 5 [12] November 2016: 71-77