

***Aspergillus niger* as a new allergic agent associated with bindis and its efficacy against homeopathic drugs**

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Abstract: *Aspergillus* was found as a dominant fungi to associate with brands of bindis. Among three potencies of four homeopathic drugs, Lycopodium 1M, Sulphur 1M, and Sepia 30 showed maximum inhibition zone of *Aspergillus niger* in inhibition zone technique. In poison food technique, Sepia 30M, Tellurium 30M, Sulphur 1M and Lycopodium 200 showed maximum percentage inhibition against *A. niger*

Key words: *Aspergillus niger*, Allergic agent, Bindis, Homeopathic drugs.

Introduction

Cosmetic and skin care products are used on a daily basis to enhance appearance and optimize the look of the skin. Bindis is a form of indigenous cosmetic, which has been traditionally and safely worn by Indian women for time immemorial. The attractive stick on bindis may add the beauty of woman but its synthetic adhesive could lead to some serious allergies like allergic contact dermatitis, which is a type of hypersensitivity, contact urticaria, pigmentary changes and irritation. The para tertiary butyl butyl phenol is available regarding the efficacy of homeopathic drugs against bindis skin degerming agents of *Aspergillus*. (Gupta and Shrivastava, 1999). Some workers (Khanna and Chandra, 1976; Shrivastava and Kushwaha, 1983; Katiyar and Kushwaha, 1998; Datta *et al.*, 2001, Dan Ulman, 2003 and Dua and Atri, 2004) have reported the antimicrobial effect of homeopathy drugs. Homeo drugs fulfill the requisite of such an alternatives particularly with regard to allergic agent of bindis causing fungal infections, therefore efficacy of dominant fungi with bindi *Aspergillus niger* was assessed against homeopathic drugs.

Materials and Methods

Four brands of bindis: Shilpa, supreme (plain), supreme (metal) and ladycare samples of the bindis were exposed to air for 5min. placing them on slides and then keeping them in petriplates. The fungi which appeared on the samples were isolated by using cotton swab technique (Garg, 1995). The sterilized cotton was dabbed on sterilized petriplates of medium. Four homeopathic drugs in liquid forms Sulphur, Sepia, Lycopodium and Tellurium of potency 1M, 200, and 30 were used to check their inhibitory action against *Aspergillus niger* by inhibition zone technique and food poison technique (Garg, 1995). The petriplates were then incubated at 28°C for four days in BOD incubator and appeared fungi were identified by manual of soil fungi (Gillman, 1951).

Results and Discussion

Aspergillus niger, *A. flavus*, *A. fumigatus* and *Candida albicans* were found to be associated with used brands of bindis, but *A. niger* was the most dominant fungi.

Further this fungus was selected to assess the efficacy of homeopathic drugs by two techniques.

Inhibition zone technique: In the inhibition zone technique, the inhibitory action of drugs against *Aspergillus niger* was observed (Table 1). The inhibitory effect of the drug on the Ladycare, Lycopodium 1M showed maximum inhibitory action forming a zone of 0.8cm., while Sulphur 1M, Lycopodium 200 and Tellurium 30 showed zone of inhibition 0.5cm. each. The growth of *Aspergillus niger* was found to be effectively controlled by Sulphur 1M and Lycopodium 30 forming zones of 1.4cm. and 1.0cm. respectively around the disc of Supreme (metal). Average inhibition was shown by Tellurium 30, Sepia 200 and Lycopodium 200 showing zones of 0.6cm. No zones were found by Sulphur 30 and Sepia 30.

The inhibitory effect of Sulphur 1M and 30 was maximum against the dominant fungi on the sample of shilpa with the zones of 1.4cm. and 1.2cm. were formed respectively. Lycopodium 1M and Sulphur 200 formed zones of 1.0cm. each. Sulphur 1M and Sepia 30 also showed maximum inhibition zones of 0.7cm. and 0.8cm. and 0.7cm. respectively. Average inhibition zone was also shown by Sepia 200 and Sulphur 200 forming zones of 0.6cm. each. Minimum inhibition was also noticed by Lycopodium 30 and Tellurium 200 forming zones of 0.2cm. each on the sample of supreme (plain bindi).

Poisoned food technique: Efficacy of testing of homeopathic drugs on the growth of *Aspergillus niger* by poisoned food technique was observed in terms of percentage inhibition of growth in days (Table 2). On 2nd day Sepia 1M, 200 and 30 was very toxic and showed 100% inhibition while after 4 days Sepia 1M was showing 100% Inhibition, Sepia 200 and 30 showed 45% and 80.7% inhibition respectively. After 8 days the fungal growth was effectively controlled by Sepia 1M showing inhibition of 72.5% while the inhibition of Sepia 200 and 30 was brought down to 38% and 80.3% respectively. Tellurium 1M, 200 and 30 showed 90%, 91% and 86% inhibition at the early incubation period respectively. After 4 days, the inhibition fell down to 83%, 88.8% and for 1M, 200 and 30 potencies respectively.

In case of Sulphur, the maximum percentage inhibition (87.4%) was shown by sulphur 200 on 2 days while

Table – 1: Efficacy of homeopathic drugs against *Aspergillus niger* in inhibition zone technique

Name of drugs	Concentration (potency)	Inhibition zone (cm) on different brands of bindi in days			
		Ladycare	Supreme (metal)	Supreme (plain)	Shilpa
Sulphur	1M	0.5	1.4	0.7	1.4
	200	0.3	0.5	0.6	1.0
	30	-	-	0.3	1.2
Lycopodium	1M	0.8	1.0	0.4	1.0
	200	0.5	0.6	0.5	0.9
	30	0.3	0.2	0.2	0.6
Sepia	1M	0.4	0.3	0.7	-
	200	0.3	0.6	0.6	0.4
	30	0.5	0.6	0.4	0.3
Tellurium	1M	0.3	0.3	0.3	0.4
	200	0.3	0.4	0.2	0.4
	30	0.5	0.6	0.4	0.3
_ No inhibition zone					

Table – 2: Efficacy of homeopathic drugs against *Aspergillus niger* in food poisoned technique.

Name of drugs	Concentration (potency)	Percentage Inhibition in days		
		2	4	8
Sulphur	1M	85.1	82.2	82.2
	200	87.4	84.8	81.1
	30	82.1	80.0	76.2
Lycopodium	1M	83.3	80.0	79.1
	200	87.1	57.7	54.4
	30	85.5	62.2	41.1
Sepia	1M	100	100	72.5
	200	100	45.0	38.0
	30	p100	80.7	80.1
Tellurium	1M	90.0	83.0	70.7
	200	91.0	88.8	52.6
	30	86.0	84.4	84.4

after 8 days maximum inhibition (82.2%) was shown by sulphur 1M and for sulphur 30, it fell down to 76.2%. Lycopodium 200 showed a percentage inhibition of 87.1% after 2 days of incubation. On 8 days the percentage inhibition was lessened to 79.1% of 1M, 54.4% of 200 and 41.1% of 30 potency. Some homeopathic drugs used to inhibit the growth of fungal pathogen of plants (Khanna and Chandra, 1976). Fungitoxic effect of Lycopodium has also been reported against *Alternaria solani* by Dua and Atri (2004).

Inhibitory effect of Sepia on *Aphanoascus terreus*, *Chrysosporium keratinophilum*, *C. tropicum* and *M. gypseum* fungi was also studied by Shrivastava and Kushwaha (1983). Sepia causes 100% against pathogenic fungi among other homeopathic drugs.

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