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ORIGINAL ARTICLE

ASCOMYCOTINA FLORA AND ITS PERCENTAGE CONTRIBUTION OVER GROUNDNUT FIELD IN TWO WINTER SEASONS.

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Abstract:

During present studies total 9 types of Ascomycotina flora were identified over groundnut field by using Volumetric Tilak Air Sampler, Bitrimonospora contributed maximum of all spores 1.01% and 1.29% in I and II winter seasons respectively. Cucurbitaria contributed 0.42% and 0.17% during I and II winter seasons respectively. Nodulosphaeria occurred in 0.74% and 0.43% during I and II winter seasons respectively and Sporormia contributed 0.20% and 9.28% during I and II winter seasons respectively.

KEYWORDS:

Ascomycotina flora, percentage contribution, winter seasons.

INTRODUCTION:

Groundnut (Arachis hypogaea L.) commonly called peanut, is a species of “bean” family (Fabaceae). It is annual herb growing up to 30 to 50 cm. After pollination the stalk of flower elongates and bend until the ovary touches the ground hence the mature fruit develops underground. It is legume pod. Ground nut is classical example of geocarpy. Peanuts have many uses, they can be eaten raw, roasted or with various racepies. Peanut oil is often used in cooking. It is more healthy. Peanuts contain high protein and high energy. The world health organization,UNICEF and Doctors used the products of peanuts to save malnourished children in developing countries. In recent studies it is found that peanut has antioxidants and other chemicals that may provide health benefits. Excess eating of peanut may show adverse effects on health.

MATERIALS AND METHODS

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The present biological investigations over groundnut field included qualitative and quantitative analysis of airspora at Nanded, Maharashtra, India.

For the present aerobiological survey 'Volumetric Continuous Tilak Air Sampler' was used. It was kept at the height of 1.5ft. above the ground level. The air was sampled at the rate of 5 litres per minute. Petroleum jelly was used as adhesive, it allows to stick the air to the tape. The cellophane tape is cut into eight equal parts. Each part of the tape corresponds 24 hours. To study day and night spora separately, it is again sub – divided into two equal parts. Now each part corresponds 12 hours sampling area for a day or night of observed fungal spores were recorded and compared with the description made in text (Adams 1964, Ainswarth 1952, Frankland 1986, Gregory 1954).

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RESULTS.

Results indicated (Table – 1) that, Bitrimonospora, Cucurbitaria, Nodulosphaeria and Sporormia genera of Ascomycotina were trapped predominantly in the field of groundnut.

The spores of Bitrimonospora occurred frequently. They contributed 0.01%, 1.29% during I and II winter seasons. The maximum monthly concentration (1904, 1372/m3 of air) was recorded in October of both winter seasons Talde (1969) erected and described this genus showing 0.02% contribution to air. Nocturnal wet spore type peak at 11.00 hours.\

The spores of Cucurbitaria were oblong yellowish brown, fusiform with transverse septa and one to many longitudional septa. In most of the segments markedly constricted at the middle septum. The spores of cucurbitaria contributed 0.42% and 0.17% during I and II winter seasons respectively. Maximum monthly concentration (518, 154/m3 of air) was recorded in the months October and November respectively. Patil (1983) reported 0.02% contribution while Jogdand (1937) reported 0.004%. Nodulosphaeria spores were cylindric, pleauriseptate, second cell from above nodulated, hyaline. The occurance of these spore types was regular. The spores of Nodulosphaeria contributed 0.74%, 0.43% during two winter seasons. The maximum monthly concentration (952, 420/m3 of air) was recorded in December and February during two winter seasons. Nodulsphaeria belonged to "night spora" group showing maximum concentration after 22.00 hours reaching peak after midnight. Pande (1976) reported 0.29% of these spores to the total airspora over orange fields at Nanded. Sporormia spores were dark brown , uniseriate with three transverse septa having a tendency to break at the septum jevel, four celled surrounded by a hyaline gelatinous sheath. The spores occurred rarely, the contribution was 0.20%, 0.28% during two winter seasons. The maximum monthly concentration (350, 266/m3 of air) was recorded in the months of November and October during I and II winter seasons respectively. Babu (1983) pointed out its peak at 10.00 hours. Kramer and Pady (1960) from Kansas, Tilak and Bhalke (1979), Patil(1983),Santra (1983)and Wankhede(1983) from Aurangabad over different crop fields.

DISCUSSION.

The present investigation in relation to general airspora studies over the groundnut fields (Arachis hypogaea L.) was carried out for two winter seasons. (i.e. I winter season from 10-10-2009 to 20-1-2010 and II winter seasons from 8-10-2010 to 2-1-2011). Using continuous Volumetric Tilak air Sampler in order to study the co-relation between airborne microbial components, weather parameters, growth stages of the crop and their subsequent effects on disease incidence on the crop. Around nine ascospore types were trapped and identified during the period of investigations. The spores of Bitrimonospora showed significantly high contribution during two winter seasons. Nodulosphaeria and Cucurbitaria were also the dominant spore types. Sporormia spore types show their rare occurrence in the field.

Incidence of these spore types in the air was focused to be dependent upon immediately after the rainfall. Majority of the spores were released in the first three hours after rains. The spore load in the winter seasons was due to the availability of congenial conditions like suitable substrates, suitable range of temperature, relative humidity and also showers.

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Table 1; Occurrence of Ascomycotinous fungal flora in groundnut field during two winter seasons.

Sr. No.	Spore type	First Winter Season		Second Winter Season		Total spore concentratioin	% Contributuion to t he total airspora.
		Spore concentration	% Contribution	Spore concentration	% Contribution		
1	Bitrimonospora	2898	1.01	2758	1.29	5656	1.13
2.	Cucurbitaria	1204	0.42	364	0.17	1568	0.31
3.	Nodulosphaeria	2128	0.74	924	0.43	3052	0.61
4.	Sporormia	574	0.20	602	0.28	1175	0.24