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Epidemiology of tikka disease of groundnut

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SUMMARY

Aerobiological investigations were carried out for one season over Groundnut (*Arachis hypogea* L.) field to assess the dispersal of the pathogen *Cercospora* sp. causing Tikka disease.Highest spore concentration was found in 9th week while onset of first symptom of disease was found in 12th week of the sampling. The period between the first incidence of pathogen and first incidence of disease was affected by the meteorological factors like temperature and humidity. The age of the plant also determines the susceptibility of the plant.

Key words : Groundnut, *Cercospora*, Meteorological factors, Disease incidence, Epidemiology

Groundnut (*Arachis hypogea* L.) is world's most popular oilseed crop cultivated in more than 100 countries in all six continents (Nwokolo, 1996).

India is largest grower among all the countries while rank second if production of groundnut is concerned. During life span groundnut become victim for about 73 bacterial, fungal, viral and nematodal diseases. Among these tikka disease caused by *Cercospora* sp. along with rust disease is responsible for heavy losses in groundnut yield, hence, they are economically very important.

These investigations were carried out to asses levels of airborne spores of *Cercospora* in relation to disease incidence and meteorological factors, which will be helpful for disease forecasting in future.

MATERIALS AND METHODS

Air-borne spores of *Cercospora* were collected by volumetric Tilak Air Sampler (Tilak and Kulkarni, 1970). The sampler was placed at center of the groundnut field at Mirkhel Dist. Parbhani (M.S.). The intake orifice was located at constant height of 1 meter above ground level. Spore trap was operated for two summer seasons from 21st January to 6th may 2007 and 22nd January to 6th May 2008. Plants in a sampling area were examined daily for disease incidence. Daily meteorological data was obtained from the department of meteorology, Marathwada Agriculture University, Parbhani. Scanning and detailed calculations were done by method described by Tilak and Bhalke (1978).

Weekly concentration and total number of *Cercospora* spores obtained during two years were listed in Table 1(a) and (b) while epidemiology of tikka disease of groundnut is shown in Table 2(a) and (b)

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RESULTS AND DISCUSSION

Tikka disease of Groundnut is one of the important diseases of groundnut.

Conidia were recorded first time in forth week of sampling during both the seasons.

In first season it's higher concentration was recorded in 13th week of sampling and it's higher concentration in second season was recorded in 7th week of sampling.

First incidence of conidia, higher concentration of conidia and meteorological conditions are important for development of disease. All these things were recorded for both the seasons (Fig. 1 a, b and c).

In the first season first incidence of conidia were recorded in forth week of sampling and it's higher concentration (322 spores/m^3 of air) was recorded in 13th week. Incidence of disease symptoms was recorded in 13th week of sampling.

Such a long delay in record of high concentration of conidia and appearance of disease from the first incidence of conidia in first season reveals that there were some factors, which were not favourable for the development of disease and that, were meteorological factors *i.e.* temperature and humidity.

In second season first incidence of conidia was recorded in forth week and it's higher concentration was recorded in 7th week of sampling. Incidence of disease symptoms was recorded in 9th week.

Difference between meteorological conditions in first and second season was noteworthy. In first season since 18th March maximum temperature was above 37.5^{0}C and such condition prevaeled up to 13th Week. Due to rainfall during 13th week temperature was decreased by 3C and