

Research Article

Aeromycology of *Cercospora* on groundnut at Newasa (M.S.)

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ABSTRACT

Tikka disease is the major disease of groundnut in India. It occurs in every state in India and in every groundnut growing country of the world. Aerial dissemination of conidia of *Cercospora* sp., which causes Tikka disease to groundnut (*Arachis hypogea* L.) var. JL-24, was studied using Tilak volumetric air sampler in two consecutive *Kharif* seasons of 2007 and 2008. Airborne monthly conidial concentration of *Cercospora* sp. in the ambient air over groundnut field was observed higher in the month of October in both *Kharif* seasons, when the monthly mean temperature was 24.1°C and 24.3°C, monthly average percentage of relative humidity level was 61.1 per cent and 68.00 per cent, monthly mean wind velocity 2.9km/hr and 2.8 km/hr and no incidence of rainfall in first *Kharif* season but 119.3 mm rainfall was recorded in second *Kharif* season. However, influence of mechanical disturbances also temporarily increased the concentration of *Cercospora* conidial spores in air in both *Kharif* seasons during the present study.

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INTRODUCTION

Groundnut (*Arachis hypogea* L.) is widely cultivated as a staple food in tropical and sub-tropical developing countries, providing a valuable source of proteins (20-45%), fats (23.8%), energy (2800 cal) and minerals (Rakipov, 1987, Enwere, 1998). In most of the developing countries in the world, groundnut is produced and consumed. Groundnut as a leguminous crop is important both as a subsistence crop and an animal feed. It is used as an after-culture plant in crop rotation in tropical zones (Pavliukov, 1988; Mekontchou, 1990). Groundnut production in African countries, where groundnut is cultivated, is found fluctuated greatly, but it never exceeded 8 per cent of the world's output over the last decade. Yields per hectare are low, because of unreliable rains, small scale traditional farming with little mechanization, outburst of pests and diseases and use of low-yielding seed varieties. This low yield is generally due to incidence of diseases such as rust, *Cercospora* leaf spot (Ouzounov, 1988; Bosc and Bonkounou, 1990; Ambang *et al.*, 2008).

Groundnut *Cercospora* Leaf spots are caused by two species of *Cercospora* i.e. *Cercospora arachidicola* Hori, causing early leaf spot (CLS) and *Cercosporidium*

personatum (Berk. and Curt.) Deighton, which causes late leaf spot. The *Cercospora* leaf spot is also referred to the term - Tikka disease of groundnut.

Tikka disease of groundnut (*Arachis hypogea* L.) caused by *Cercospora* Fr. is very prevalent, wherever the crop is grown and losses amount up to 50 per cent (Jackson and Bell, 1969). Feakin (1973) considered this as the most important airborne fungal disease of the crop. However, work on dispersal of the pathogens involved is very limited. Sreeramulu (1970) studied aerial dispersal of conidia of *Cercospora* sp. for a single crop season, while Smith and Crosby (1973) studied *Cercospora* sp. in three rainy season crops. Mallaiah and Rao (1980) at Guntur, studied aerobiology of two species of *Cercospora* pathogenic to groundnut, using Hirst spore trap and glass rod samplers for a period of three years from 1974 to 1976, covering nine crop periods. Rajalakshmi and Shakila (2008) at Peravurani, Thanjavur district, undertook aeromycological survey over groundnut field in order to access, the disease incidence to the crop by pathogenic spore types. Ghewande *et al.* (2002) at Junagadh in Gujarat, observed on set of early and late leaf spots in groundnut which emerged when crop was of 10-28 days. In