

Studies on seed mycoflora of spices

G.T. SUMANTH AND B.W. WAGHMARE

Accepted : April, 2010

SUMMARY

India, despite being largest producer of spices, there is great potential for increasing export of Indian spices. To realize this potential there must be improvement and productivity enhanced quality as per international standards, India does not export more than 10% of its production due to lack of number of improved seed varieties to suit different agro-climatic situations and proper adoption of package practices, control measure for diseases, pests and post harvest pathogens. Pathogens adversely affect on production and quality of spices. The seed-borne pathogens are one of the major cause of serious diseases in growing crops because of poor health and quality of seeds. To realize this aspect the study has been undertaken and observed that, among the tested spices the *Alternaria alternata*, *Aspergillus flavus*, *Aspergillus niger*, *Aspergillus ustus*, *Cladosporium cladosporidies*, *Curvularia lunata*, *Fusarium oxysporum*, *Fusarium roseum*, *Helmenthosporium tetramera* and *Trichoderma viride* had maximum incidence on Agar plate and *Alternaria alternata*, *Aspergillus flavus*, *Aspergillus niger*, *Aspergillus ustus* and *Helmenthosporium tetramera* had maximum incidence on Blotter plate.

Key words : Spices, Incidence, Fungi

Spices are cultivated in different parts of world, however, India is largest spice producing country. About 63 plants that yield spices are cultivated in country among which most are traded nationally and internationally in India. The spices are cultivated in Tamil Nadu, Kerala Andhra Pradesh, Karnataka, Rajasthan, Gujarat, Madhya Pradesh, Uttar Pradesh, Punjab, Kashmir etc. based on different agroclimatic conditions. Seeds play vital role in the transmission of pathogen and development of disease. The pathogen may be externally or internally seed borne. This takes place either in the field or in ill storage condition. The damage resulting in the development of disease at later stages of plant growth by systemic or local infections (Singh and Trivedi, 2000). Such contaminated seeds cause serious diseases in human beings.

Literature on seed mycoflora of spices revealed and observed by several workers. Manjari Rai and Jariwala (1996) Assessed mycoflora of spices collected from local markets of Varnasi after 12 months of storage in metallic containers and isolated 39 and 24 fungal species from unsterilized and surface sterilized stored seeds, respectively. Seema Keshri (2003) isolated 168 isolates of *Aspergillus flavus* from 14 spices including ammi and

cardamom. Ayres *et al.* (1980) stated *Aspergillus* and *Penicillium* sp. as dominant among of spices including cardamom. The contamination of cardamom by fungi was reported by Lebai *et al.* (1985).

Regina and Raman (1988) reported 21 fungal spices of caraway. Gordana, R. Dimic *et al.* (2008) reported 11 genera and 23 species, where *Aspergillus* and *Penicillium* spices were dominant contaminants of caraway. Prasad (1986) reported infestation of *Aspergillus flavus*, *Aspergillus nidulans*, *Curvularia lunata*, *Curvularia pallescens*, *Cladosporium cladosporidies*, *Cladosporium oxysporium* and *Memnoniella echinata* in pre-storage stage of coriander and observed increase in values after 6 months. Rani, P *et al.* (1995) studied seed mycoflora of 5 spices including coriander in which species of *Alternaria*, *Curvularia*, *Aspergillus*, *Rhizopus* and *Mucor* sps. were most common. Jain and Jain (1995) isolated 32 fungal species from 4 spice crop including coriander where *Alternaria alternata* was found dominant. Hashmi and Ghaffar (1991) seed borne mycoflora of coriander from seed samples of 15 countries and isolated 24 fungal species belonging to 14 genera such as *Alternaria alternata*, *Fusarium moniliforme*, *Phoma spices*, *Fusarium semitectum*, *Fusarium solani*, *Fusarium eqiseti* etc. Rastogi (1993) found *Alternaria burnsii* to be a contaminant of black coloured seeds of cumin from 47 samples out of 105 samples from 16 districts of Rajasthan in blotter and agar plate technique. Gamal EI. Din *et al.* (1990) isolated 13 fungi in healthy as well as infected seed samples of cumin collected from six locations of

Correspondence to:

G.T. SUMANTH, Department of P.G. Studies in Botany, Adarsh Senior College, Omerga, OSMANABAD (M.S.) INDIA

Authors' affiliations:

BHAGAWAN M. WAGHMARE, Botany Research Centre, Department of Botany, Maharashtra Mahavidyalaya, Nilanga, LATUR (M.S.) INDIA