

## Scenario of fungal diseases of *Vanilla planifolia* in Karnataka

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### SUMMARY

During 2004-05, important diseases in Vanilla caused by *Colletotrichum gloeosporioides* and *Fusarium oxysporum* were noticed in all four districts surveyed whereas *Rhizoctonia bataticola* was observed only in Hosudi village of Shimoga district and *Sclerotium rolfsii* was noticed in few places of Uttar Kannada district. *Colletotrichum gloeosporioides* and *Sclerotium rolfsii* infection seen on leaf, stem and bean of vanilla. *Fusarium oxysporum* caused stem and root and shoot tip rot whereas incidence of *Rhizoctonia bataticola* was noticed only on root.

Key words: *Vanilla planifolia*, Incidence, Fungal diseases

**Y**anilla *Planifolia* Andrews, a tropical herbaceous perennial orchid, is the source of natural vanillin which is used as a highly favoured spice in confectionaries, puddings, ice creams and beverage industries. Presently it is cultivated in India in an area of 2545ha with an average production of 92 tonnes. It is mainly grown in states like Karnataka, Kerala and Tamilnadu (Singhal, 2003). Today, the vanilla consumers all over the world prefer only natural vanillin extracted from cured vanilla beans and hence the prospects of vanilla cultivation is very attractive. As the cured beans fetch very high prices, more and more planters are coming forward to cultivate this valuable spice crop. Due to increased area under this crop, disease problems have shot up hindering the successful cultivation of the crop. At this point it is essential to have detailed knowledge on the fungal diseases, per cent disease incidence and symptomatology of fungal diseases which are commonly found in Karnataka.

### MATERIALS AND METHODS

Fixed plot survey was conducted during 2004-05, to know the incidence of fungal diseases, in vanilla growing districts such as Shimoga, Uttar Kannada, Dharwad and Belgaum in Karnataka.

The disease incidence was assessed on vanilla crop by recording the number of plants showing fungal disease symptoms such as leaf spot, bean rot, shoot tip rot, stem rot and root rot. In each field/shade net condition rows were selected randomly and the number of plants showing typical fungal symptoms and the total number of plants were recorded. Per cent disease incidence was calculated by using formula.

$$\text{Per cent disease incidence} = \frac{\text{No. of diseased plants}}{\text{Total no. of plants}} \times 100$$

During survey, characteristic symptoms of each disease were recorded and also sample collected for isolation of fungal pathogens which attack on Vanilla.

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### RESULTS AND DISCUSSION

#### Survey:

During survey, incidence of *Colletotrichum gloeosporioides* (Penz.) Penz. and Sacc. was noticed on leaf, stem and bean. While *Fusarium oxysporum* Schlecht incidence was observed on stem, root and shoot of vanilla in all four districts of Karnataka. The incidence of *Rhizoctonia bataticola* (Taub.) Butler observed on root of Vanilla for the first time. It caused dry root rot and this was observed only in Hosudi village of Shimoga district. *Sclerotium rolfsii* Sacc. infection was found on leaf, stem and root in few places of Uttar Kannada districts (Plate 1)

Incidence of *C. gloeosporioides* was highest in Uttar Kannada (29.83%) followed by Shimoga (20.05%) and least incidence was observed in Dharwad district (2.5%). Higher incidence of *C. gloeosporioides* in Uttar Kannada and Shimoga district may be due to the taking up of vanilla cultivation as intercrop in arecanut plantation, which may act as source for *C. gloeosporioides*. Highest incidence of *F. oxysporum* was observed in Shimoga district (14.34%) which may be due to prevalence of suitable environmental conditions for pathogen (Table 1). Amaresh *et al.*, (2005) indicated the occurrence of fungal diseases such as stem rot, root rot and bean yellowing caused by *F. oxysporum* in Sirsi (24.20%) and Siddapur taluk (20.08%). Further, they also reported the severe occurrence of leaf spot and bean rot caused by *Colletotrichum* sp. in Sirsi, Siddapur and part of Yellapur taluks, which varied from 18.20 to 28.50 per cent. During survey, partial and discontinuous wilting of vanilla was observed and this was due to mixed infection of *C. gloeosporioides* and *F. oxysporum*. This is the first report of partial and discontinuous wilting on Vanilla.

#### Symptomatology :

##### *Colletotrichum gloeosporioides*:

*C. gloeosporioides* was one of the most important fungal pathogens which causes leaf spot or leaf rot, bean spot or bean rot and stem rot (Plate 1).

Leaf spot: The leaf spots were observed in the form of reddish brown to brown coloured round or oval lesions of sizes ranging from 2-2.5 cm on the leaves. At later stages,