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Morphological and molecular variability of *Colletotrichum truncatum* and field level management approaches against pod blight complex of soybean in India

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The association of Colletotrichum truncatum, Alternaria alternata, Macrophomina phaseolina has been observed in causing anthracnose/pod blight of soybean in northern Karnataka. However, Colletotrichum truncatum has been found predominantly associated in causing anthracnose disease. The variability of eleven isolates of Colletotrichum truncatum collected from major soybean growing areas of the country indicated that the colony colour ranged from cottony white to dark grey, the spore shape was only truncate type and there is no difference with respect to spore size of Colletotrichum truncatum isolates. Among the different isolates collected, the colony colour was dark gray in Bidar isolate of Karnataka, Ujjain isolate of Madhya Pradesh while, the Bagalkot isolate of Karnataka and Kota isolate of Rajastan produced white colony colour. The rest of the other isolate produced distinct colony colour. Five representative isolates with distinct geographical identity (Bg- Bagalkot, Dh-Dharwad, La-Latur, Um-Umiam, Uj-Ujjain) were used for molecular study by using RAPD technique. The genetic similarity coefficient of five isolates ranged from 37 to 66 per cent. Maximum similarity of 66 per cent was observed between isolates Bagalkot (Bg) and Latur (La) followed by 58% between isolates Bagalkot (Bg), Ujjain (Uj). The results obtained from the cluster analysis revealed that sub cluster groups composed of isolates belonging to same geographical locations with distinct variability. Out of 19 genotypes, the genotypes viz., DSb 12, DSb 20, DSb 23-5 and Kalitur were found highly resistant with a disease grade of one. The genotype JS 335 was highly susceptible to anthracnose with a maximum disease grade of nine. The two year investigation (2014 &2015) revealed that the integrated management by seed treatment with Thiram+Carboxin @ 2g/kg of seed followed by spray at 55 and 75 DAS with Trifloxystrobin + Tebuconazole @ 0.1% was found effective in reducing anthracnose severity and enhancing the yield both at Dharwad and Ugarkhurd. In modular approach study conducted over three years(2013-2015), the chemical module/adapative module have been recommended for the management of major diseases(rust, anthracnose and purple seed stain) and insect pests(defoliaters and Pod borer) in a holistic approach.