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"A Review Study on Diseases of Faba Bean(*Vicia faba* L.)"

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Abstract-*Faba beanis an economically important legume in India and used all over the world. It is commonly known as horse bean, Baakla, and kala matar locally. Faba bean crop suffers from a huge variety of fungal, bacterial, viral and nematodal diseases. They cause infections and deleterious effect to the bean plant which resulted heavy yield loss. Heavy crop losses have been reported due to diseases such as Anthracnose disease, Halo spot disease, Chocolate spot and Common bacterial blight etc. and increasing negative impact on environment.In the present review, a brief introduction to various diseases of faba bean, their symptoms of diseases.*
Keywords: *Vicia faba, faba bean, bacterial diseases, pathogens.*

I. Introduction:

The faba bean plant is an important legume crop which belongs to genus *Vicia* and family Fabaceae.The growth of the faba bean crop is supported bylower temperature and short photoperiod.

The faba bean crop is affected by many bacterial, fungal pathogens, viruses and nematodes that causes damage to the plant (Hagedorn and Inglis, 1986). The severity of pathogens dependson variety and region. It is suffers from various bacterial, fungal, viral and nematodal diseases and their management are being discussed in the present review study.

II. Diseases of Faba bean

Fungal, bacterial, viral and other pathogens infect plants by different means of seed, soil, crop debris and weeds. They damage plants by necrosis, or by causing plant stress. Pathogens may be spread by air currents, water splash and from contaminated seeds. Faba bean plant suffers from a large number of pathogens. Some major diseases of faba bean are as follows:

2.1 Fungal Disease:

Chocolate spot disease: Chocolate spot is the most widely occurring disease of faba bean in the world. This disease is caused by fungi *Botrytis cineria* and *B. fabae*. *Botrytis fabae* and *B. cineria* both fungal pathogens will be able to produce mild infection in faba bean. But *B. fabae* is more aggressive pathogenic and responsible for aggressive phase of chocolate spot disease (Emeran *et al.,* 2006).Chocolate brown colored spots first seen on leaves, stem and flower when fungal infection start in faba bean.

Anthracnose disease: Anthracnose of faba bean cause serious losses in the temperate regions than in the tropics of the world. The pathogen causing anthracnose on faba bean is *Colleototrichum lindemuthianum.* Initially symptoms of infection appear as small reddish-brown circular spots on leaves, stems and pods (Mohammed, 2013).

Rust: Rust disease is one of the most commonly occurring diseases of faba bean. \Therust disease iscaused by*Uromyces-viciae fabae.* It completes its life cycle on faba bean plant. As a result of diseases numerous small, orange rust pustules appear on leaves and stems.

Sclerotinia stem rot: This desease occurs worldwide in faba bean crops. It is a soil borne disease. The stem rot disease iscausedby *Sclerotinia sclerotiorum.* Symptoms of diseases appeared as indefinite sized water soaked lesions on aerial parts of plant (Lithourgidis *et al*., 2004).

Ascochyta blight disease: This disease occurs in most of the countries where faba bean is cultivated.The disease is caused by fungal pathogen *Ascochyta fabae.*Leaf blight symptoms occur on leaves, stem and pods.

Downy Mildew disease: This disease is commonly occurring in faba bean.It is caused by the fungus *Peronospora viciae.*It infects only young plants. Symptoms occur on leaves initially as yellow-brown patches appear on upper surface.

Black Root rot: It is a serious disease of faba bean worldwide. It is caused by the fungus *Fusarium solani*. Symptoms are observed as yellow necrotic lesions appear on basal leaves and stunted plant growth (Kurmut *et al*., 2002).

Powdery Mildew: This is another air borne important fungal disease affecting faba bean. The disease shows severity in dry seasons while in high humid conditions the severity may be less. It is a fungal disease caused by *Erysiphe pisi*. Yellow powdery spot of fungal growth appears on the leaf, stem and other plant parts.
Cercospora leaf spot disease: It is a common foliar disease of faba bean. This disease is caused by *Cercospora zonata* fungi. Irregular black lesions appear on both sides of the leaves with a distinct margin which may be similar to ascochyta blight (Kimber and Paull, 2011).
Seedling blight disease: Disease caused by *Rhizoctonia solani* which represents a large and diverse group of fungi. They cause disease on wide range of the host plants. Symptoms appears on the leaf sheath are oval and greenish gray in color.
Pythium rot disease: Several species of *Pythium* affects seed, seedlings and root in faba beans. If the seed and seedlings are infected initially then seed fail to germinate and become soft and mushy.
2.2 Bacterial Diseases- Bacterial Disease occurs in the faba beans all over the world The pathogen *Pseudomonas syringa*e cause bacterial brown spot disease (Lindemann *et al*., 1984).*Pseudomonas syringe* pv. *phaseolicola* is a seed borne bacterial pathogen of halo spot disease. The infections appear as water soaked circular spots on leaves, fruits and lesions on shoots (Singh *et al.,* 2012). Common bacterial blight disease is very severe disease of faba bean caused by *Xanthomonas axanopodis syn. Xanthomonas campestris*(Karavina *et al.,* 2008 and Akhavan*et al.,* 2013).
2.3 Viral Disease-*Faba bean necrotic yellow virus, Bean leaf roll virus, Bean yellow mosaic virus,Broad bean mottle bromovirus, Broad bean wilt virus, Broad bean true mosaic virus, Broad bean stain virus*.are some viral diseases of faba bean.These were causes severe disease symptoms include mosaic, leaf puckering and stunted growth in faba beans.

2.4 Nematode Disease-Faba bean crop is infected by the root knot nematode *Meloidogyne* in different areas of the world.
2.5 Mycoplasma disease-This disease aster yellow caused by phytoplasma. In infected plant growth stunted (Castro and Romero, 2004).
2.6 Angiospermic parasite-*Orobanche crenata* is weedy root parasite that widely occurring in faba bean.

III. Conclusion

Faba bean crop suffers from various phyto- pathogens which causesheavy yield losses by causing different plant diseases. This review concludes that diseases(Fungal, bacterial, viral and nematodal) of faba bean crop.

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