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Phyllody Disease in Sesame

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SUMMARY

Sesame is an important edible oilseed crop next to mustard and groundnut in India. It is referred to as "queen of oilseed crop". The average productivity of sesame in India is far less than the world average. The reduction in productivity of sesame is due to many constraints. Among them, phyllody is a major threat to farmers which declines the area and productivity of sesame. The importance of nutritional aspects of sesame, transmission of phyllody disease, symptoms and control measures were discussed.

INTRODUCTION

Sesame is an ancient oilseed crop cultivated worldwide. India is the leading producer of sesame in the world. The crop is cultivated in a wide range of atmosphere from semi-arid tropics, sub tropics to temperate areas of the world. Sesame is also called as nutritional gold mine due to its nutrient content. It is highly preferred for its high edible oil content (50%), nutritious protein (23%) and sufficient carbohydrate (15%). Sesame oil also contains phytosterols and antioxidants like sesamin and sesaminol which is good for health. Though sesame is widely used for different purposes, the crop has low yield capacity compared to other plants due to its low harvest index, susceptibility to diseases, seed shattering and indeterminate growth habit (Khalid Pervaiz Akhtar *et al*., 2009). The crop is under constant threat to many diseases. Among the major constraints, phyllody is a very serious disease in most sesame growing regions which takes a heavy toll resulting in significant losses and drastically decreases sesame yields, especially in warm climates. It has also been referred to as "green flowering disease" or "Pothe" in Burma, "sepaloidy" and "stenosis" in India, and "phyllomania" or "green flowering" in Africa.

Sesame has a yield potential up to 2.0 tonnes/ha, which has to be achieved by adopting proper crop management and timely protection technologies, which increases the yield potential of sesame (Harisudan and Vincent, 2019). There is a demand to grow sesame as it is having a pharmaceutical and nutraceutical ability which minimizes diabetics, blood pressure, cholesterol *etc*. (Wathore*et al*., 2021). To cope up with the increasing demand of oilseeds in the country, sesame should be included as an integral part in rice fallow areas with a dual advantage of crop diversification for sustainable production and increasing the area under sesame with integrated approach to control the biotic stress in sesame (Harisudan and Sapre, 2019). Besides research information on soil health, pest management, mechanization *etc*. are also needed and research gap has to be addressed to find a concrete solution (Ramesh *et al*., 2019).

Recognizing the issue

Phyllody of sesame, sometimes erroneously called "leaf curl". Different types of phyllody disease symptoms were observed on sesame plants. The major disease symptoms were floral virescence, phyllody, and proliferation. In addition, seed capsule cracking, *in-situ* germination, formation of dark exudates on foliage and floral parts and yellowing. The most characteristic symptoms of the disease are transformation of floral parts into green leaf-like

structures, followed by abundant vein clearing in different floral parts. The affected plant bears clusters of leaves and a malformed flower at the tip. All the plants look like a witches broom. Eventually, the entire flower shoot is replaced by short twisted leaves closely arranged on a stem with abnormal branches bending downwards. Evidence suggested that phytoplasma down regulate a gene involved in petal formation, instead causing leaves or leaf like structures (Vamshi*et al*., 2018).

Disease Transmission

This disease is caused by Phytoplasma and transmitted by leaf hoppers (*Orosiusalbicintus)*. Even though the capsules are formed on the lower portion, the plant does not fetch good quality seeds. Continuous monocropping of sesame will aggravate the problem (Harisudan*et al*., 2010).

Identification of the pest

Adult: Light brown coloured hopper

Control measures

- Maintain proper field sanitation and free of weeds
- Intercropping of sesame with redgram (6:1)
- Avoid monocropping of sesame
- Remove and destroy infected plants
- Seed treatment with imidacloprid protects the crop from sucking pests like leaf hoppers for a month
- Spray dimethoate 30 EC @ 500 ml/ ha at 30, 40 and 60 days after sowing could bring down the population of *Orosiusalbicintus*

Foliar spraying of quinalphos 25% EC 2000 ml/ha

Healthy plant Disease plant

CONCLUSION

phyllody also known as green flowering disease, is a very serious disease, now prevalent in all the sesame growing regions which takes a heavy toll resulting in significant losses and drastically decreases sesame yields. Maintaining the proper good agricultural practices and proper disease management can effectively control the disease.

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