

A NEW SUNFLOWER DISEASE IN IRAN CAUSED BY PHOMOPSIS HELIANTHI

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SUMMARY

Brown spot and stem canker of sunflower was occurred first time in summer of 1985 in Mazandaran and different varieties particularly on sunflower hybrid CMS 26 x R-28. The percentage of infection due to this disease was variable but it showed the max. infection and disease loss by 20% on hybrids.

The isolated fungus from the collected diseased samples was identified as Phomopsis helianthi. The symptoms of this disease was brown spot and stem canker and in advanced stages, the lesions were developed on the fibre and invade the stem and pith which weakens the plant. The infected plants exhibit brown discoloration and dies. The importance of this disease, geographical distribution, symptoms of disease, part of biology of fungus (asexual form), type of spread and losses caused by this disease were studied. Different species of weeds from Compositae and areas as expected places for the survival of this fungus in Iran and production of sexual and asexual forms were distinguished, which may help in development of control measures. To prevent and reduce the loss due to this disease, various measures were proposed, but the most effective control measure can be obtained through resistant varieties.

INTRODUCTION

At present, this disease was reported from several parts of the world. It has been considered as one of the dangerest fungal disease of sunflower. Concerning to the biology of pathogen, its control appears to be more difficult and needs a long-term solution.

By increasing our knowledge about this pathogen and doing a great deal of experiences on crop management techniques, still there is a need for doing some common schemes in the field of obtaining resistant varieties with high yield production in this country.

MATERIALS AND METHODS

During our regular surveys from the infected fields in Mazandaran Province in North of country, a favourable region for the development of this disease, we could estimate different aspects of disease by the help of statistics, counting, grading and numbering of spots and cankers on stem of diseased plants. Laboratory experiments was carried out by growth and isolation of pathogen on suitable medium in dessicator under 80% relative humidity and 25-28°C. Pathogenicity test was confirmed in green house condition by pot tests and through injection of suspension containing spores of asexual form into green and young shoots which over incubation lead to development of symptoms.

In vitro experiments for the production of sexual forms of this fungus and pathogenicity test with ascospore were under investigation. The germination ability of seeds obtained from infected bushes by Blutter method showed the reduction between 15-20%. About 19 species of weeds from family compositae and sunflower cultivated areas were collected and identified. Therefore it needs more attention in reduction and control of these weeds.

RESULTS AND DISCUSSION

The highest degree of damages caused by this fungus was occurred in showery weather, though the spread of pathogen was directly related to the tolerance

and resistance of different varieties of sunflower. In Iran the severity of disease in compare to the other varieties of sunflower was more and it has been on hybrid CMS 26 x R-28 reached 20%.

Concerning to this disease, the damages include decaying the seeds, reduction of seed germination ability, low quantity of seeds and finally yield reduction, late in harvesting the rapidly wilted plants cause maximum damages.

At last, the following control measures were recommended in our country;

- To obtain and cultivate disease free seeds with high vigor quality.
- To avoid transferring of the infected seeds into disease-free fields.
- Crop rotation.
- Regional research in finding localities fitted for the growth of sunflower with unsuitability for the growth and spread of pathogen.
- Plant residues should be removed and burned.
- Deep plowing after harvesting.
- Identification and chemical treatments of the alternate hosts.

It is evident that any inadequate application of the abovementioned will lead to a severe damage. Therefore studies on sources of resistancy for obtaining resistant varieties as a specific and unique control measure will be promising.

SUGGESTION

Due to the importance of pathogen, its vast distribution areas and considerable yield losses caused by this fungus in most sunflower-producer countries, it was suggested for the arrangement of an effective common research work and by providing the facilities like scientific information exchange, regular surveys in international level.

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