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RESEARCH ARTICLE

PHALARIS MINOR RETZ. FIRST TIME REPORTED FROM WHEAT FIELDS OF BHOPAL DISTRICT MADHYA PRADESH INDIA. A CASE STUDY.

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Abstract

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Introduction:-

Wheat were grown in almost every state of the India Among these states Madhya Pardesh is at the 4th position, in wheat production and is the leading state in the wheat production almost 76.271 lakh metric tons of wheat were produced during the 2015-2016 year, Bhopal district lies in the central part of Madhya Pradesh. Geographically, it lies in the eastern part of Malwa Plateau, sloping towards North, except the south valley, which is joined with Hoshangabad district. The extremities of Bhopal district lie between parallels of latitude 22^o.33' and 23^o.53' North and the meridians of longitude 76^o.26' and 77^o.91' East. It lies 509 m above mean sea level. The area of district is 2772 km². The population of the district is 2,371,061 according to 2011 census. The district is bounded by the districts of Guna in the North, Rajgarh in Northwest, Sehore in Southwest, Raisen in east and Vidisha in Northeast of it. The climate of Bhopal district is relatively moderate and dry, except in the monsoon season, indicating a seasonal rhythm of weather. Invasive weeds have high growth and biomass production, besides these they possess the high competitive, reproduction ability and also produced huge number of seed, seed dispersal mechanism is also efficient, the rapid establishment and other qualitative traits help them to adopt and thus invade new habitats (Simberloff et al 2005; Sharma et al 2005). Some of the species possess allelopathic potential and are more tolerant to different abiotic conditions (Sharma et al 2005; Huang et al 2009). However, both biotic and abiotic properties of the invading habitats are likely important as the autoecological attributes of the invading species in influencing invasions success (Higgins 1996 et al). According to (Singh et al 2006) 10% of the vascular plants of the world has the ability to invade the new ecosystems and make impact on the native biota in direct or indirect ways, about 18% of Indian flora are alien (Nayar 1977). An invader may have established well in non-native land, but may have restricted distribution. *Phalaris minor* Retz. (Poaceae) is a non-native winter annual grassy weed, which is largely constrained to wheat fields and has negative effects on growth and yield of wheat (Kaushik et al 2005). This weed is a native of Mediterranean region, but now it makes its distribution worldwide and spread to 60 countries (Singh et al 1999). *Phalaris minor* was reported to be a major weed in Latin America and probably reached India through the import of Mexican wheat it was becoming a problem by the 1970s Bhan and Chodary 1976). However Anderson indicates *Phalaris minor* infestations during 1961 in some parts of India. According to surveys of wheat crops in the states of Punjab (Bir and Sindhu 1979; Zahir and Gupta 1979) and in Haryana (Malik et al 1981, 1985; Singh et al 1995a) realized that *P. minor* as the most dominant weed of wheat in northwest belt of India. However its presence in central India has sighted only by Mishra (2008) in Jabalpur district. But as far as Bhopal district is concerned no

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one before has mentioned its presence our article is the pioneer which highlighted its presence in wheat field of the district.

Materials and Methods:-

Field survey of different wheat fields across Bhopal district were conducted during the rabi season. Its collection and identification by comparing it with the available monographs and its fresh plant material has been identified with using available taxonomic literature.

Taxonomical classification

Kingdom.....Plantae-plants

Sub-kingdomTracheobionta-Vascular plants

Super-division....Spermatophyte-Seed plants

DivisionMagnoliophyta-Flowering plant

ClassLiliopsida-Monocotyledons

Sub-classCommelinidae

OrderCyperales

FamilyPoaceae-Grass family

Genus*Phalaris* L.-canarygrass

Species.....*Phalaris minor* Retz.-littleseed Canarygrass

Nomenclature

English name: Small canary grass, Littleseed canary grass,

Hindi name: gulidanda, genhunka mama.

Botanical name: *Phalaris minor* Retz. (Synonym: *Phalaris canariensis* L.)

Description:-

Our survey during the years between 2012 -2015 revealed that the different crop fields of Bhopal district were got contaminated with *Phalaris minor*. Total survey of wheat fields (Figure 1) were 62 and out of them 21 fields confirm its presence, along the saliaya village its infestation was more as compared to the other areas of district. And it is difficult for the general people to identify it because it completely resembles with the wheat crop plant until the flowering period at that time its pinnacle looks like the foxtail and thus distinguished itself from the rest of wheat crop. However, if we look carefully, at the plant we notice some differences like its stem is much jointed due to presence of many nodes and internodes the main Colum may be branched/unbranched, plants height ranges from 90-120cm. the leaves of *Phalaris minor* are light green in colour while that of wheat are dark green and two internodes are joined by an node clearly visible and it makes the upper internodes slightly bended and thus gives the node an elbow structure, basal portion of plant is pink as compared to basal portion of wheat plants. *P. minor* has prominent white and pointed ligule and very short auricle. Contrary to this, wheat has prominent auricle and very poorly developed ligule. During the flowering period the pinnacle looks like that snowflakes wrapped the pinnacle which is due to anthers oozes from the flower (spikelet), flowering period starts from February and lasts upto first week of March and earhead length is 6-9cm.

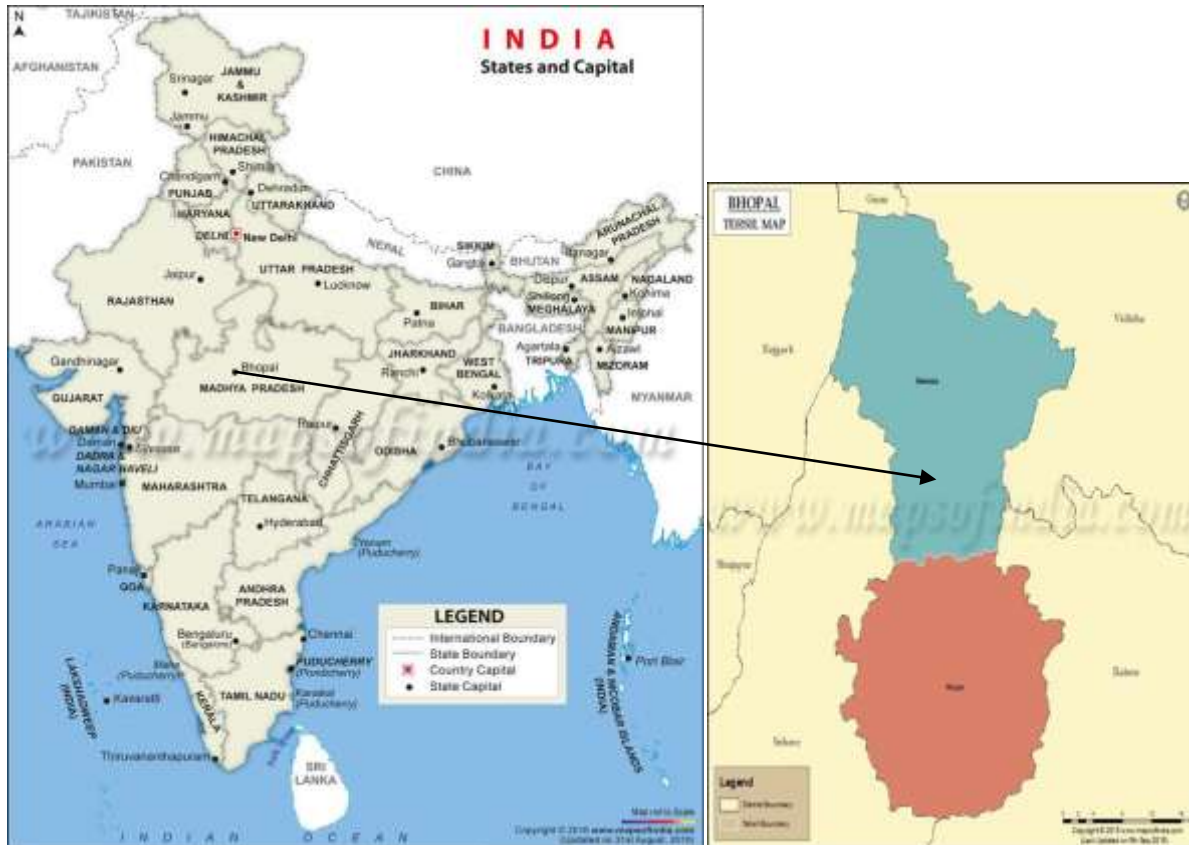


Figure1:- Field survey area in Bhopal

Conclusion:-

survey of the crop field are important so that there will be assessment of new invaded weed species that if remains unnoticed for the long time they will flourish well in that condition becomes problematic and may cause huge loss to the crop production, besides this before introduction of any kind of seed stock or plant we should check it carefully so that any kind of unwanted material should not be accompanied with it otherwise will become problematic in the newly inhabitant places as *Phalaris minor* that was not sighted before seven decades in india, but now-a-days it is considered one of the leading problematic weed in the wheat fields especially rice-wheat cropping system and continuously invade the new areas, like Bhopal was the newly inhabited area as far as its distribution is concerned in india..





Fig 2:-*Phalaris minor* Retz. a, close glimpse of pinnacle shows oozes of anther; b, Infestation in wheat field; c, interaction with farmers about it presence; d, Tillering of *P. minor*; e, White colour ligule and nodes; f, *Phalaris minor* Retz.

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