

Diversity of weed flora associated with rice crop in Kasaragod district, Kerala, South India

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SUMMARY

The Kasaragod district is one of the major rice producing area, where crop yield is affected badly by weed flora. The present investigation provides an account of weeds of rice crops in Kasaragod district and also threw light on their economic importance. During present study, 142 plants belonging to 37 families were collected, identified and reported.

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India is the second largest rice producing country in the world (Nag and Nag, 2004). Rice (*Oryza sativa* L.) production is an important part of the national economy as it can grow in a wide range of soil types, including saline, alkaline and acidic (Takahashi, 1984). Major problem in paddy fields is the weed management, which is the most critical factor affecting the crop yield. Weeds are those plants whose virtues have not yet been discovered or a plant considered undesirable, unattractive or troublesome, especially one growing where it is not wanted. Weeds become detrimental to crops by changing the pH of soil, decreasing soil nitrogen and phosphorus content, which in turn reduces straw yield by 13-38% and grain yield by 25-47% (Manandhar *et al.*, 2007). It is estimated that in Asia yield loss due to uncontrolled weed growth in direct seeded paddy fields was 45-75% and for transplanted low land paddy fields approximately 50% (Johnson, 1996). 12% of the total loss of crop yields has been attributed to the weeds alone (Ananya, 1999).

Weeds exert a direct effect on crop as they compete with them for nutrients, moisture and light. Due to high seed viability, easy dispersal of seeds, wide adaptability to extremes of climatic conditions and biotic stress, weeds show vigorous growth and high persistence (Singh *et al.*,

1999).

Kasaragod district, the northernmost district of Kerala, lies between 11⁰18' and 12⁰48' N latitudes and 74⁰52' and 75⁰26' E longitudes. Like all other areas of the country, here also weeds are one of the major threats for rice production. In this paper an attempt was made to explore the diversity and species composition of the weeds of rice crop in Kasaragod district of Kerala.

MATERIALS AND METHODS

Extensive field trips were carried out to paddy fields which are spreaded all over the Kasaragod district, from January 2007 to December 2009. Fortnightly field observations were undertaken during the period June to February. During these field trips the weeds were collected from paddy fields and were identified using regional floras (Hooker, 1872 - 1897; Gamble and Fischer, 1915-1936; Manilal and Sivarajan, 1982; Mathew, 1984; Ramachandran and Nair, 1988; Gopalakrishna Bhat, 2003; Anilkumar *et al.*, 2005). The voucher specimens were deposited at the SSC herbaria. The village people and farmers were personally interviewed using data sheets and questionnaires. Data regarding the different weeds of rice, their properties, effects on rice yield, control measures and uses were collected. Authentic publications (Kirtikar and Basu, 1935; Anonymous, 1948-1976; Nadkarni, 1954; Chopra *et al.*, 1956; Ambasta, 1986; Jain, 1991; Sivarajan and Indira Balachandran, 1994; Warriar *et al.*, 1994) were referred to know the economic importance of these weeds.

RESULTS AND DISCUSSION

Present study reveals that Kasaragod district was

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