

## Rice weeds of Karimnagar district of Telangana State, India

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### Abstract

Karimnagar district of Telangana state, India is known for its rich rice fields and familiar as rice bowl of Telangana. Keeping in view of the importance of we have conducted a survey on the weeds of rice fields of the district, which is very important in the crop management to get more yield. In this paper we have reported the dominant weeds present in the rice fields of the Karimnagar district.

### INTRODUCTION

India is one of the major agrarian country in the world. Agriculture is a major industry in India and ca. 70% of rural people depend on agriculture for their primary livelihood of which 82% farmers being small and marginal. India is one of the largest food producers on the planet earth after China, USA and Brazil and the largest producer of milk, jute and pulses, where ranks for second in the production of rice, wheat, sugarcane, cotton, groundnuts, fruits, vegetables and cattle (FAO, 2020). Indian agriculture plays an important role in the country's economy and accounts for 17.8% of Gross Value Added for 2019-2020. Agriculture in India has been witnessing changing trends with weed (agrestals) intrusion. Weeds account for about one-third of the total loss, so efforts should be made to decrease the loss (Anonymous, 2020). Against this back ground we have conducted a survey on weeds of rice crops of Karimnagar district of Telangana, India.

### Study area

Karimnagar is a city in the Indian state of Telangana. During the Nizam era, the name Karimnagar was named for a village by an Elgandala Qiladar, Syed Karimuddin. Karimnagar is a major urban agglomeration and fifth largest city in the state. It is governed by municipal corporation and is the headquarters of the Karimnagar district. It is situated on the banks of Manair River, which is a

tributary of the Godavari River. It is the fourth largest and fastest growing urban settlement in the state, according to 2011 census. It serves as a major educational and health hub for the northern districts of Telangana. It is a major business center and widely known for Granite and Agro-based industries. It is also called as "City of Granites". Kotilingala in Karimnagar district was the first capital of the Satavahana Kingdom (230 BCE–220 CE). Formerly known as Sabbinadu, inscriptions dating to the Kakatiya dynasty (1083–1323) by kings Prola II and Prataparudra found at Karimnagar and Srisailam provide evidence of the area's rich history. Archaeological excavations in Pedda Bonkur, Dhulikatta and Kotilingalu show that the area was once ruled by the Satvahanas, Mauryas and Asaf Jahis. It was previously part of Hyderabad State before 1 November 1956, Andhra Pradesh state till 2 June 2014 and became the part of newly formed state of Telangana by Andhra Pradesh Reorganisation Act, 2014.

The district is spread across an area of 2,128 square kilometres and shares boundaries with Jagtial and Peddapalli district on north, Warangal Urban district and Siddipet district on south, Rajanna District on the East and Jayashankar Bhupalpally District on west. According to 2011 Census of India, the district has a population of 10, 05,711. Situated on the Manair River, Lower Manair

Dam is indeed a tourist delight. The Manair River, which is a tributary of the Godavari River is home to a dam built at the confluence of Manair with the Mohedamada River. It is a popular picnic spot located close to Karimnagar. Located close to the left bank of river Manair near Karimnagar town, the hilltop fort of Elgandal was constructed during Kakatiya period, and it was later passed on to the hands of QutbShahis. There are two stone

fortification walls, two mosques, two dilapidated temples, ammunition building, jail khana, wells and other structural edifices in this fort. Located near Lower Manair Dam, on the outskirts of Karimnagar town is a famous tourist attraction called Ujwala Park, where tourists relax in the tranquil surroundings. Rajeev Gandhi Deer Park located near Ujwala Park, is known for its teeming deer population..



Figure 1. Karimnagar district map, Telangana

## MATERIALS AND METHODS

Extensive field trips were conducted during 2020-2022 covering two seasons (kharif, rabi) and visited about 500+ villages across Karimnagar district of Telangana and recorded the occurrence of weeds in rice fields. The observed weeds were identified in the field itself and the unidentified plant specimens were identified using standard floras, e-floras, revisions. The nomenclature of the plant species was updated using [www.worldfloraonline.com](http://www.worldfloraonline.com), [www.theplantlist.org](http://www.theplantlist.org) After an extensive review of literature on global invasive species (Mooney and Drake, 1987; Heywood, 1989; Cox, 1999; Cox, 2004; Cracraft and Francesca, 1999; D'Antonio and Vitousek, 1992; Drake et al, 1989; Randall et al, 1997; Huxel, 1999; Jenkins, 1999; Lonsdale, 1999;

Mooney, 1999; Elton, 2000; Mooney and Hobbs, 2000; Almeilla and Freitas, 2001; Cowie, 2001; McNeely et al, 2001) and of India and their spread based on history, species origin, species behavior and field observations, a list of 26 species of invasive aliens was prepared. The websites were also examined extensively for background information. The nativity of the species is provided based on Matthew, 1969; Maheswari and Paul, 1975; Naqvi 2001, Nayar, 1977; Sharma, 1984; Hajra and Das, 1982; Saxena, 1991; Pandey and Parmar, 1994; Reddy et al, 2000; Reddy & Raju, 2002; Reddy & Reddy, 2004; Murthy et al, 2007; Negi and Hajra, 2007, Pullaiah 2015, Reddy C.S & Reddy K.N 2016).

**RESULTS AND DISCUSSION**

Based on history, species origin, species behavior and field observations, a list of 11 species of dominant weeds was prepared and presented in tabular form (Table 1). Of these Poaceae and Cyperaceae are followed by Amaranthaceae and Asteraceae etc.

Weeds can deprive the crops 47% nitrogen, 42% phosphorus, 50% potassium, 39% calcium and 24% magnesium of their nutrient uptake from the soil. In rice crops, *Echinochloa* and *Panicum* taxa are the best hosts for stem borer (Fig 1 &2)). In addition to these adverse affects on plants, the weeds can also highly harmful to human beings as well animal husbandry, water flow in canals, drain system, etc. and pollute water bodies by the reduction of dissolved oxygen (Gnanavel and Kathires, 2006). Allergenic pollen weeds (*Parthenium hysterophorus*, *Ageratum conyzoides*, etc.) cause various health problems like dermatitis, asthma, sinusitis, rhinitis in humans (Devarinti, 2015). An integrated and eco-friendly approach is highly important for the management of agrestals. The land use efficiency and weed suppression through intercropping plays important role in the management (Pradhan et al., 2018). Though there are many methods to reduce the impact of agrestals like mechanical, biological and chemical, mechanical weed control (hand weeding) method is highly suitable for the complete removal of weeds along with root system prior to flowering which is an age old practice in India. Recent times, along with the hand weeding, some other alternatives like blade harrow and utilization of herbicides are adopted to control the weeds in agroecosystems. An

integrated agrestal management (IAM) is multidisciplinary ecological approach to manage unwanted plant taxa in agricrops (Mahadevaiah and Sagar, 2014) and provides the best long-term management for the prevention and control of noxious weeds. **CONCLUSION**

It is also observed that due to the association of the weeds with the crops, the quality and quantity of the yielding were drastically decreased. The present study is highly important for awareness, suitable control measures, effective management of rice weeds to improve the high yield.

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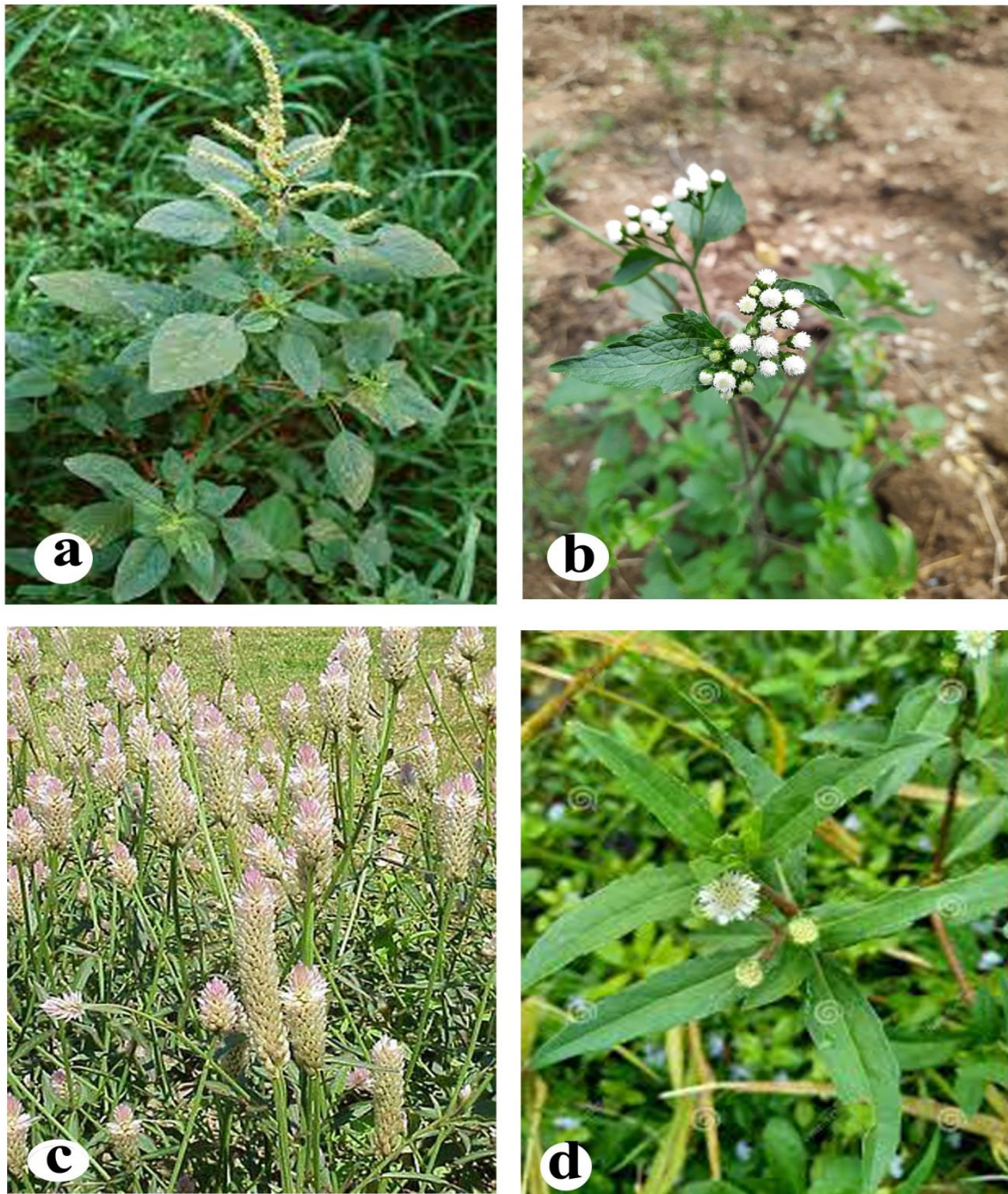
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**Table 1. Rice weeds of Karimnagar district, Telangana, India.**

S.No.	Botanical name	Family	Local name
1.	<i>Echinochloa colonum</i>	Poaceae	Wild rice, chotta sawank
2.	<i>Echinochloa crusgalli</i>	Poaceae	Banyard grass, sawank
3.	<i>Cyperus rotundus</i>	Cyperaceae	Purple nut sedge, motha
4.	<i>Cyperus iria</i>	Cyperaceae	Yellow sedge, chhatiwala dila
5.	<i>Cyperus difformis</i>	Cyperaceae	Common sedge, motha
6.	<i>Eclipta alba</i>	Asteraceae	false daisy, jal bhanga
7.	<i>Celosia argentea</i>	Amaranthaceae	Cock's comb, chilmil, sarai
8.	<i>Dactyloctenium aegyptium</i>	Poaceae	Crowfoot grass, makra
9.	<i>Setaria glauca</i>	Poaceae	Cattail millet, laptana, banra
10.	<i>Scirpus spp.</i>	Cyperaceae	Club rushes,
11.	<i>Panicum spp.</i>	Poaceae	weed





**Figure 2.** a) *Amaranthus spinosus*; b) *Ageratum conyzoides*; c) *Celosia argentea*; d) *Eclipta alba*.





**Figure 3.** a) *Echinochloa colonum*; b) *Cyperus iria*

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