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Floristic Study of Some Weeds Found in The Rice Field of Palita of the District Burdwan, West Bengal

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Abstract

The Present work prepares a general account on some angiospermic weeds, which are growing in different seasons in rice field of Palita village of the district of Burdwan, West Bengal. The study was based on extensive and intensive fields surveys made during months of rainy season, 2014. During this study frequent field trips were made twice a month in each site for collection of weeds. Three important fields were chosen. The most common weeds found in the fields are described.

Keywords: Crop Productivity, Floristic, Weeds.

Introduction

Paddy (*Oryza sativa* L.) is one of the most important food crops of the world and is the most emerging crop in India after wheat. India is the second largest producer of rice after China (Savary et al. 2005). Being staple food it plays an important role in the economy of India hence occupies a central position in agricultural policy making (Dangwal et al. 2011). The average yield of paddy per hectare in India is less as compared to China due to many factors like shortage and high cost labour; lack of irrigation facilities, quality of germplasm, agricultural output and ecological conditions etc., but the problems of weed is the major contributor in the loss of production. Weed is a plant which is judged by man to be not of use and undesirable at a place where it flourishes (Patil et al. 2010). Weeds cause enormous reduction in crop yield, wastage of resources and human energy and are also health hazards to human beings. Weeds are major problem limiting the growth and yield of paddy. They usually grow faster than the rice plant. They complete their life cycle within short period. For this, it needs more water and nutrient. So, they absorb available water, nutrient earlier than paddy crop and suppress crop growth and productivity of rice plant. The reduction in paddy yield due to weed composition ranges from 9-51 % (Mani et al 1968).

In this present study some dominant weeds of area of Palita village, Burdwan, West Bengal have been enumerated. It is the first report of the weeds of this village. The knowledge of weeds may help the farmer to avoid those species to eradicate from the cultivation field.

Study Area

This taxonomic work of the weed plants is carried out on the rice fields of Palita under Ketugram block of Burdwan district of West Bengal. It is located at 23.6489286° N Latitude and 87.9608835° E Longitude . The maximum average temperature in summer is 30°C and 20°C in winter. The cold season starts from about middle of November and continues till the end of February. March to May is the dry season. It receives an average rainfall of about 149 mm. The soil is of reddish in colour, medium to course in texture, acidic in reaction, low in nitrogen, calcium, phosphate and other plant nutrients.

Material and Methods

The weeds were collected throughout the cultivation season. After collection, the specimens were brought to the laboratory and dissected and the detail morphology was observed. These specimens were identified with the help of literature including Floras, Monographs of several authors like David. P. (1903), Sannyal, M.N. (1994).The specimens were processed in adequate replication for preservation in the form of herbarium sheets with labels incorporating scientific and local name, family name, place and date of collection, field number etc. Representative specimens of each species were taxonomically described. Quadrats studied were laid down in 3 different sites of rice fields for determination of dominance and abundance of the weeds.

Results

The major weed plants were collected from the rice fields of Palita are described below

Cyperus rotandus Linn.
Local Name – 'Jalmutha'
Family : CYPERACEAE
Description
1. Herbaciouos, with a hight of 15-60 cm.
2. The plant is swollen and thickened at the base. It has triangular, stem smooth shape, arising from the centre of a basal cluster of narrow grass like leaves of 30-50 cm long and 8 mm wide.
3. Root Fibrous type.
4. The leaves are smooth shiny, dark green and grooved on the upper surface.
5. Underground stem slender, underground runners grow out from the base of the stem and form series of black, irregular shaped or nearly round tubers which are 2 cm in length.
6. Inflorescence arises from stem apex. It consists of a number of slender branches which carries a cluster of spikelets at the end which are brown in colour. Each spikelets consists of ten to thirty small crowded florets which ripen to form black triangular nuts.
7. Flower Small subtended by bracts, zygomorphic, bisexual, superior, Perianth Reduced blister like, Androecium Stamens– 3, anther linear, basifixed.

a. Gynoecium Caples –3, united ovary1 celled with a solitary basal ovule.

8. Fruit Trigonous nut.

Medicinal Uses
1. Plant is diuretic & used in dropsy.
2. It is also used in insanity, hysteria.

Scirpus articulatus Linn.
Local Name -"Fulonko grass"
Family : CYPERACEAE**:**
Description
1. Herbaceous 10 – 50 cm high.
2. Stem Short rhizomatous with upright trigonous sprout, covered with sheathing leaf base.
3. Leaf scale like, lies at the base of stem axis.
4. Inflorescence Spikelets sessile, many flowered , glumes spirally, imbricate round a stout or slender rachis,flower Bisexual, hypogynous, zygomorphic, Flowering glume, spirally arranged , perianth part absent, androecium Stamens – 3, anther linear, gynoecium Carpels– 3, syncarpous, superior, stigma– 3, slender, style single, ovary one chamber with basal ovules.
5. Fruit Nut.

Medicinal Uses
1. Plant is diuretic & used in dropsy.
2. The stem is used to stop bleeding.

Eleusine indica Gaertn.
Local Name – "Dhingi Grass"
Family : POACEAE
Description
1. Herbaceous 15 – 20 cm high.
2. Root Fibrous, both primary and adventitious root present.
3. Stem Short rhizomatous soft with cylindrical, compressed partially, with nodes and internodes, hollow at internodes.
4. Leaf Simple, distichus, long, narrow, entire with sheathing base, erect ligule at the apex of she
5. Inflorescence Terminal Spikelets.
   Flower Bisexual, complete, regular, superior, 2 empty glumes, & 2 flowering glumes, glumes unequal, hypogynous, tepals - 2, represented by 2 lodicules, stamens 3, free, anther short, versatile, carpels 3, syncarpous, superior, style short, stigma slender.

6. Fruit a seed like grain.

Medicinal Uses
1. The entire plant is used to stop bleeding.
2. The extract of the plant is used to cure cough and asthma.

Cynodon dactylon Linn.
Local Name – Bermuda Grass
Family :POACEAE
Description
1. One of the worst weed of the world, Low herb, 5–10 cm high.
2. Stem cylindrical, green, glossy, nodes solid , half of internodes covered with sheathing leaf base.
3. Underground stem Perennial grass with long runners which strike roots at the nodes and extensive underground rhizomes.
4. Leaf setiolate, simple, alternate, linear, leaf base sheathing, hairy, 3-10 cm, membranous ligule is absent.
5. Inflorescence The inflorescence consists of 4-5 slender purplish spikes of 10 cm. long. The spikelets are light green or purplish, sessile, laterally compressed alternatively 2-seriate, imbricate and 1 flowered.
6. Fruit A seed like grain.

Medicinal Uses
1. Expressed juice used as anticatarrhal and antidusenteric
2. Decoction of root used to treat dropsy

Dactyloctenium aegyptium *(*Linn.) Beauv.
Local Name – "Crowfoot Grass"
Family : POACEAE
Description
1. Herbacious, 10 – 60.5 cm high.
2. Stem cylindrical, green, glossy, nodes solid, half of internodes covered with sheathing leaf base.
3. Root fibrous, both primary and adventitious root present.
4. Underground stem perennial grass with long runners which strike roots at the nodes and extensive underground rhizomes.
5. Leaf petiolate, simple, alternate, linear, leaf base sheathing, hairy, 3-4 cm.
6. Inflorescence 2-5 spikes in terminal umbel, the rachis projecting in a point beyond the spikelets, dark olive grey, digitately radiating, The rachis projecting in a point beyond the spikelets.
7. Fruit a seed like grain.

Medicinal Uses
1. The seed like grain is used to mother after child birth, suffering from belly ache.
2. Now a day, it is used to cure ulcer.

Eclipta alba *(*Linn.) Hassk.
Local Name – "Keshut"
Family: ASTERACEAE
Description
1. Low Herbs, procumbent with branches, 10 – 25 cm high.

2. Stem solid, terete, arial, hairy and light brownish in colour, differentiated into nodes & internodes.
3. Leaf simple, sessile, ex-stiplutate, toothed, opposite decussate, lanceolate, acute hairy, green with reticulate venation.
4. Inflorescence axillary heterogamous capitulum, peduncle erect, peripheral flower (ray florets) ligulate type and central flowers (disc florets) tubular type, bracts greenish – 2 rowed.

Ray florets

Bracteate, Sessile, Incomplete, Unisexual.

Disc Florets

Numerous, Spirally Arranged, Bisexual, Complete.

- Fruit cypsela.

Medicinal Uses

1. It is used now days to recovery of hair falls.
2. The entire plant is used as a remedy of treatment of bleeding.
3. The plant is used in diphtheria and diarrhoea.
4. The plant is used in snake bite.

Ludwigia parviflora Roxb.
Local Name – "Banlabanga"
Family: ONAGRACEAE

Description

1. Erect Herbs with few branches, 15 – 25 cm high.
2. Stem aerial, erect, quadrangular, branches, green, differentiated into nodes and internodes.
3. Leaf alternate simple, entire, estipulate, glabrou
4. Inflorescence Solitary axillary, sessile type.
5. Flower actinomorphic, bisexual, epigynous, tetramerous.Sepal 4 connate into a tube, lobes persistent.Petals-4, twisted, lies above the ovary, yellow.Stamens – 4, epipetalous, introse.Carpel-2 syncarpous, inferior, ovules many in axile placentation.
6. Fruit a linear, oblong capsule.

Medicinal Uses

1. The shoot extract is boiled with oil to bring down fever.
2. Plant reduced to paste and steeped in buttermilk useful in dysentery and vermifuse.

A Comparative Account of the Features of the Studying Weeds

Sl No.	Name of the species	Growing time in the rice field	Growing place	Mode of propagation in the rice field
1	*Cyperus rotandus*	July – September	High water Containing Fields	Underground tubers
2	*Scirpus articulatus*	July – September	High water Containing Fields	Underground tubers and stoions
3	*Eleusine indica*	July – September	Low water Containing Fields	Underground stolons and seed
4	*Cynodon dactylon*	All times present in field	Both high and low water Containing Fields	Underground rhizomes and stolons
5	*Chrysopogon aciculatus*	August – October	Low water Containing Fields	Underground stolons
6	*Eclipta alba*	July –October	Low water Containing Fields	Fragmented underground stem
7	*Ludwigia parviflora*	August – October	Poor water Containing Fields	Fragmented underground stem

Discussion

District Burdwan is the most rice yielding district of West Bengal. Most of the people of district are dependent on agriculture as a source of lively hood. The economy of this district revolves around production of its cash crop the rice. The persistent weed species give a severe competition to paddy crop and reduce the agricultural output. The weeds like *Cyperus rotandus* and *Scirpus articulatus* show maximum infestation. However some of the weeds reported from the study area i.e., *Eclipta alba*, *Cynodon dactylon*, *Ludwigia parviflora, Elusine indicum* etc. are of medicinal importance, used in traditional medicines by vaidhyas (Sur, P.R. 2008). As these are the weeds of rice fields they should be eradicated. The traditional practice is to chop out or uproot them selectively. New easy methods should be introduced during the cultivation of rice to overcome the loss done by these weed plats.

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