International Journal of Emerging Technology and Advanced Engineering
Website: www.ijetae.com (ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 7, Issue 6, June 2017)

Study of Weed Plants of Rabi Crops of Balrampur, District of Uttar Pradesh with Ethnomedicinal Uses.

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***Abstract*-- The Rabi crops include Wheat, Barley, green gram, black gram, mustard, potato, pea, masoor and other vegetables such as radish, coriander, cauliflower etc. Farmers, local people, agricultural labourers as well as herbal healers of the said area were approached to collect the information on the uses of the crop weeds as fodder and in primary health care as raw materials for the preparation of various herbal formulations. The present study provides an account of weed of rabi crops of Balrampur district in Eastern Uttar Pradesh. In present investigation 118 plants species belonging to 34 families were collected, identified and reported and their possible uses by common people is documented.**

***Keywords*- Weeds, Rabi crops, ethnomedicine**

I. INTRODUCTION

Jethro (1731) for the first time defined 'a weed as a plant can grow where it is not desired' in his much esteemed 'Horse Hoeing Husbandry'. Weeds are unwanted plants that grow in association with agricultural crops and bring about significant decline in yield through their competition with crop plants for water, sunlight, space, nutrients etc. (Dangwal et al., 2010). However, some weeds are also allelopathic in nature (Oudhia and Tripathi, 1997; 1998). While Holm et al., (1977; 1979) estimated that about 8000 weed species growing in world, of which only 250 are of particular importance to agricultural crops.

In view of significant yield decline by weeds in different crops, numerous studies have been carried out on various aspects of weed biology and control in India. Wheat (Triticum aesativum L.) is the second important staple food crop, next to rice in India. Rice – Wheat cropping system is predominant in our country of which 40% wheat is grown. The grasses and broad leaf weeds flourish luxuriantly because of availability of moisture and nutrient in abundance and lesser competitive ability of wheat cultivars. In general, seasonal long competition for major weeds culminates in yield reduction to an extent of 15- 40 % in this context Kaul (1986) studied the weed flora in Kashmir valley and reported 401 weed species belonging to 251 genera and 56 angiosperm families. Shailey and Gaur (1993) studied the phyto-sociological association of crops and weeds of Pauri district of Uttrakhand, India and recorded 180 weed species belonging to 50 angiosperm families.

The dominant dicot families were Amaranthaceae, Apiaceae, Asteraceae and Brassicaceae and Commelinaceae and Poaceae from monocot familes. Singh et al

Balrampur district is situated at foothill of Himalaya above 143 meter of Sea Level between 27.45-28.10^{O} North latitude and 82.30-83.13^{O} East longitude having different kinds of topography ,Soil and Vegetation.In most part of the district Farming is still rain fed, but in the plain irrigation facilities are now available. Weeds are the unwanted plants within the crop field. In the crop fields they competete with crop plants for the water, nutrients light and space and thus reduces the crop yields. They also harbor insect, pests, and microorganisms.Certain weeds release into the soil the inhibitors, or poisonous substances which are harmful to plants,human being and live stocks.(I.C.A.R.,1987).

The Suhelwa forest, one of the famous tropical deciduous forests with certain wetland ecosystems of the Indian subcontinent situated in north on Indo- Nepal Border of the district is well known for its natural forest and flora thereby attracting ecotourism. Plants were in use by man since prehistoric times and some plants utilized as food, medicine and fiber are now considered as weed, because of the discovery of new improved plant species. Many of these plants species would still be considered useful but are ignored in view of the development of plants having greater productivity and superior flavour. Inspite of their negative impact on crops, most of the weeds have positive uses as mentioned above. The one of the important aspect of these weeds seems to be their medicinal properties which are well explored by the native people such as farmers, agricultural labourers and knowledgeable elderly persons for curing a wide range of diseases in human as well as domestic animals. Rural people are very much familiar with large number of wild plants and animals as they live close to nature. Earlier reports indicate the use of several medicinally important plant species by the rural community of forest dwellor of Balrampur to cure various human and animal diseases (Akhilesh et.al.2006). However, very little work has been attempted on ethnobotany of crop weeds, for which the present study was undertaken12.

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Weeds increase the expenditure on labour and equipments,renrer harvesting difficult and reduce the quality and marketability of agricultural produce. The present paper deals with an account of weeds of ravi crops of Balrampur District,with emphasis on the various types of the crops weed association and emphasizes upon the popularization of traditional knowledge of rural communities for ensuring local values to be translated into rational use of the folklores as source of medicine as well as effective conservation of their biodiversity. This has simultaneous impact on the socioeconomic upliftment of the local communities. .

II. Materials And Methods

An extensive investigation was conducted to find out the medicinal value of weeds prevalent in the field of Rabi crop in Balrampur district of Uttar Pradesh during 2015-2016. As the flowering and fruiting seasons are different, floristic survey of crop fields were conducted at regular intervals to gather information of different stages of development of the weed specimens Fortnightly field observation were undertaken in different blocks of Balrampur district= Balrampur Sadar, Tulsipur, Sivpura, Gaisari, Pachpedwa. Sriganj, Utraula, Rehra and Gairas Bujurg in 2015-1016. The Crop fields surveyed include Wheat, Black gram, Mustard, Pea, Masoor,Potato,Onion, and other vegetables like Radish, Coriander, Cauliflower, etc. Some common people, farmers, as well as local herbal healers were interviewed to know the name of the weeds and their use in the treatment of human and animal diseases. Ethnic uses of these plants were studied *in situ* by establishing close intimacy with the herbal healers as well as knowledgeable men and women of the area. Various claims in folk-lore were recorded and voucher specimens were collected. The detailed ethnic information regarding the application, procedures and preparation methods of these crop weeds were documented.

The district Balrampur has a very rich weed flora .A survey of available literature about weed was given by Dithie(1960),Dutta and Banerjee(1978),Singh (1991),Jain(1991), Mukherjee(1989) from various parts part the country.. During the field survey wwed plants were collected.The collected plants were identfiedusing flora of Duthie(1960) and Singh(1991) and the herbarium were deposited in the Department of Botany ,M.L.K.p.G. College Balrampur .

III. Result And Discussion

During the survey of the Rabi crop fields, located in the Seven Blocks of the district, 119 weed species belonging to and 35 families were collected and documented.

However, the information collected on the utilization of these weeds revealed that 58 species having utility in combating various ailments of human beings as well as domestic animals (table-1). These medicinal weeds were found to be frequently used for the treatment of common human diseases including cold and cough, diabetes, diarrhoea,dysentery, ear infection, fever, glycosuria, gastric troubles, jaundice, joint pain, skin infections, food poisoning, epilepsy, psychosis, nervous depression, leucoderma, pyorrhoea, back ache, trauma, gum troubles, scalp sore of children, gynaecological problems, respiratory disorders, while the veterinary uses covered breathing trouble, cold and cough, dyspepsia, enlargement of glands in throat, flatulence, foot and mouth disease and indigestion.

It is also evident from the Table 1 that the family Asteraceae (eighteen species) shows a rich diversity of ethnomedicinally important crop weeds followed by the family Euphorbiaceae (seven species) as compared to other angiospermic families studied. Reports are available on different useful weeds from different parts of the state of the Uttar Prasesh, however, the present investigation will certainly highlight the role of different crop weeds of Rabi season in Balrampur district. A good number of workers also investigated the ethnobotanical uses of common plants of Balrampur used in various diseases of human beings1-11 and animals.

Out of weed species reported from the study area, weeds like *Anagallis arvensis, Cypreus rotundes, Fumaria parviflora, Lathyrus aphaca, Melilotus indica, Parthenium hysterophorus, Rumex dentatus, and Vicoa indica* are common weeds of Rabi wheat crops dominated spin the study area. The weeds like species of *Euphorbia, and Polygonum barbatum, Polygonum persicara Melilotus alba*, were reported particularly from irrigated fields. Some weeds reported from the study area, such as *Achyranthus aspera, Calotropis procera, Chenopodium album* and *Cynodon dactylon* are of medicinally importance. The weeds like *Amaranthus viridis, Chenopodium album, Lathyrus aphaca, Vicia hirsuta and V. sativa*are used in cooking recipes by local people and other local tribes(Tharu) of the study area. These findings are in a greater analogy with the previous work of Kaul (1986) and Singh *et al.* (2007), moreover, the recent studies of Hussain *et al.* (2004 & 2009) also show a varying flora.

The Balrampur District is rich in weed flora belonging to family Asteraceae, Poaceae,Euphorbiaceae and Amaranthaceae because many member of these families are short day plants adapted to growing in temperate region.

Essential mineral nutrients and sufficient water are the reason of abundance of weeds. Most of the weed species are medicinally important and some used as fodder and minor millets.

IV. Conclusion

The yield losses due to weeds are generally more than the combined losses caused by insects and pathogens together. The impact of weeds is always obscure and it becomes visible when the critical time has gone; whereas that of insects and pathogens is visible at all times. This is the reason that why the weeds are mostly ignored and on contrary the insects and pathogens attacks are given proper heed.

So it is necessary to manage these weeds properly so that they can be utilized elsewhere and properly conserved. The present study may be helpful in identification of some common weeds of Wheat Rabi crops.

Acknowledgement

The author is thankful to Head Department of botany, Principal M.L.K.P.G.College Balrampur, technical staff of the department and student of M.Sc. Botany who helps us to do the work properly**.**

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	Table -1 List of weed plants			
S.N.	**Name of plant**	**Family**	**Common name**	**Ethnomedicinal uses**
1	*Abrus precatorius* L	Fabaceae	Ghumchi	Root,Leaves and seed used to treat fever,Tetanus etc
2	*Acalypha indica* L	Euphorbiaceae	Kakoli	Rejuvenate the body
3	*Acanthospermum hispidum* D.C.	Asteraceae	Gokhru	Whole plant is crushed to make a paste to use in skin ailments and juice of the leaf is used to treat general fever.
4	*Achyranthus aspera* L	Amaranthaceae	Latjira	Ash of the plant is given to treat asthma and cough. Decoction of plant is used for skin diseases
5	*Allmania nodiflora* L Rbr	Scrophu lariaceae		
6	*Altemathera Pungens* H.B.K.	Amaranthaceae		
7	*Amaranthus spinosus* L	Amaranthaceae	Katili Chlai	Leafy vegetable source of Iron
8	*Amaranthus viridis* L	Amaranthaceae	Bhaii	Leafy vegetable source of Iron
9	*Anagallis arvensis* L	Primulaceae		Used in treatment of rheumatism,leprosy,snake biteand nephritis etc
10	*Andropogon annulatum* Forsk	Poaceae	Chara, Kail	
11	*Ageratum conyzoides* L	Asteraceae	Uchunti	Antidysentric
12	*Andropogon contortus* Forsk	poaceae	Makrai	Root extract to kill intestinal parasite
13	*Argemone mexicana* L	Papaveraceae	Kanteli	
14	*Arundella tuberculate* L	Poaceae	Makraghas	
15	*Astercantha longifolia* Nees	Acanthaceae	Talmakhana	Source of Calcium
16	*Blumea lacera* (Burm L) D.C.	Asteraceae	Bangobhi	Leaf extract against joint pain
17	*Boerhaavia diffusa* L	Nyctaginaccae	Punarnawa	Roots are boiled in water to obtain extract which is used as liver tonic
18	*Brachiaria reptans* L	Poaceae	Chara	
19	*Brassica compestris* L	Brassieaceae	Rai	As leafy vegetable and antiseptic
20	*Calotropis procera* L	Asclepiadaceae	Madar	Latex is grinded with sugar in 1:10 ratio and is used to treat asthma.

21	*Carissa opaca* Stapfex Haines	Apocynaceae	Karonda	
22	*Cassia acutifolia* L.	Caesalpiniaceae	Kasaundi	
23	*Cassia tora* L.	Caesalpiniaceae	Chakwed	Natural Pesticide
24	*Cassia angustifolia* L.	Caesalpiniaceae	Chakauda	Leaves as laxative to treat constipation
25	*Celosia argentea* L.	Amaranthaceae	Su rli	
26	*Centella asiatica* L.	Umbelliferae	Brahmi	Memory improvement
27	*Chenopodium album* L.	Chenopodiaceae	Bathua	Affected parts are applied with juice prepared from leaves for 15 days or till the disappearance of white spot or leucoderma.
28	*Chenopodium ambrosioides* L.	Chenopodiceae	Chiski	Anthelmintic to treat ascaris an hookworms
29	*Cisulia axiliaris* L.	Asteraceae		
30	*Cleome viscosa* L.	Cleomaceae	Hurhur	Seed as spices
31	*Coccinia grandis* L. Voigt	Cucurbitaceae	Beraikand	
32	*Coculus hirsutas* L. Diels	Men ispermaceae	Jal Jamni	
33	*Commelina benghalensis* L.	Commlinaceae	Kankanua, Kaina	
34	*Convolvulus arvensis* L.	Convolvu laceae	Hirankhuri	Leaf lotion to treat spider bite
35	*Crotolaria nana* Burm f.	Papilionaceae	Ghunghuria	
36	*Croton bonplandianum* Baill	Euphorbiaceae		Cancer ,constipation ,jaundice,dysentery etc
37	*Cucumis melo* var agrestis Naud	Cucu rbitaceae	Pahuta	Antiulcer,antiinflametory,cardiovascular disorder
38	*Cuscuta reflex*a Roxb.	Cuscutaceae	Aakash banwar	Constipation,lever ,spleen,diarrhoea
39	*Cynodon dactylon* L. Pers.	Poacece	Doob	Root decoction is given to treat fever. Morning walk with barren feet is suggested to those patients who are suffering from burning sensation in feet
40	*Crozophora tinctoria (L)A.juss*	Euphorbiaceae		Ashes of its root are given to children to cure cold cough.
41	*Cyperus scariosus* Rbr.	Cyperaceae	Gozila	As perfume

42	*Dactyloctenium aegypticum* L	Poaceae	Ghans	
43	*Datura alba* L.	Solanaceae	Dhatura	Leaves are smoked to relieve asthma. The paste of leaves is applied to hairs to expel lice (antilice).
44	*Dichanhium annulatum* Forsk.	Poaceae	Chara	
45	*Dioscorea bulbifera* L.	Disocoreaceae	Gaenthi	The extract of the root tuber is taken in the treatment of urino-genital disorders ,control of roundworm and to alleviate constipation
46	*Eragrasties unilodes* (L.) Nees exsteud	Poaceae		
47	*Eclipta alba* L.	Asteraceae	Ghamira	Against Wound,and head ache
48	*Eclipta prostrate* L.	Asteraceae	Jalmogra	
49	*Elephantus scaber* L.	Asteraceae	Sandulan	For skin disease
50	*Eragrosties tenella* L.	Poaceae		
51	*Eriochloa procera* (Retz) C.E. Hubb	Poaceae	-----	
52	*Eulaliopsis binate* Hubb.	Poaceae	Bagaie	
53	*Euphorbia genicealta* Orteg. Nov. Rar.	Euphorbiaceae	-----	
54	*Euphorbia hirta* L.	Euphorbiaceae	Chhoti Duddhi	Femele disorder and respiratory ailments
55	*Evolvulus alsinoides* L.	Cinvolvu laceae	Papori	Psychotropic and nootropic
56	*Fumaria parviflora*	Fumariaceae	Pitparpa	
57	*Galinsoga parviflora* Cav .	Asteraceae	----	
58	*Glochidion varutilum* Juss.	Euphorbiaceae	-----	
59	*Gomphrena celosoides* Mart.	Tiliaceae	Gaursakari	Root (1 cm) is chewed before sleep at night regularly against pyorrhoea and gum troubles.
60	*Imperata cylindrical* L. Beauv.	Poaceae	Barrai	
61	*Indigofera glabra* L.	Fabaceae	----	
62	*Indigofera hirsuta* L.	Fabaceae	-----	
63	*Impomea pestigridis* L.	Convolvu laceae	Bilaripai	Against Prickles
64	*Lathyrus aphaca* L	Fabaceae	Janghani	
65	*Lathyrus sativus* L	Fabaceae	Keraon	

66	*Leucas aspera* (Willd) Link.	Lamiaceae	Gumbi	Against fever
67	*Leucas lanata* benth.	Lam iaceae	----	vermifuge
68	*Ledwigia purviflora* Roxb	Onagraceae	Bhakura	
69	*Martynia diandra* (Roxb)	Martiniaceae	Baghnakha	Epilepsy ,inflammation,sore throat etc
70	*Milletia extensa* Benth	Papilionaceae	Gulheri	
71	*Melilotus alba L.*	Papilionaceae	------	Green manure
72	*Medicago sativa L.*	Papilionaceae	lucerne	Digestive ,tonic,laxative as good fodder
73	*Medicago denticulate L.*	Papilionaceae	Maina	
74	*Mucuna puriens* L.	Fabaceae	Kavanch	Roots and seedto strengthen nervous system
75	*Mazus pumilus(Burn.F.)Van.*	Scrophulariaceae	-----	
76	*Nicardia physaloidy Lnn.*	Solanaceae	------	
77	*Nicardia plumbaginifolia VixElench.*	Solanaceae	------	
78	*Ocimum basilicum* L.	Lamiaceae	Ban-Tulsi	Plant has antibacterial, anti-inflammatory and wound healing properties and also used in diarrhea, astringent and rheumatism
79	*Oxalis cornoculata L.*	Oxalidaceae	Khati meethi	Antihelmintic,fever ,scurvey skin disorder,jaundice etc
80	*Panicum psilopodium* L.	Poaceae	----	
81	*Panicum repens* L.	Poaceae	-----	
82	*Partheinium hysterophorus* L.	Asteraceae	Gajar ghans	
83	*Pentapetes phoenicea* L.	Sterculiaceae	----	
84	*Peristrpohe bicalyculata* (Retz) Nees.	Acanthaceae	Chirchita	Treatment of Malaria
85	*Phoenix acaulis* Buch-Ham Ex-Roxb.	Arecaceae	Chind, Khajuri	
86	*Phyllanthus fratemus* L.	Euphorbiaceae	Bhooiamla	Entire plant decoction is used against jaundice
87	*Physalis minima* L.	Solanaceae	Phutkainya	Diuretic and antipyretic
88	*Portulaca oleracea* L.	Portulacaceae	Kulfa	Vegetable source of antioxidant
89	*Rhynchosia minima* D.C.	Fabaceae	Oariabel	
90	*Rumex dentatus* L.	Polygonaceae	Jangali Palak	

91	*Rungia repens* Nees.	Acanthaceae	Thanki	
92	*Saccharum spontaneum* L.	Poaceae	Kans	
93	*Salvia plebia P.Br.Prodr.Steenis*	Lamiaceae	Sefakun	
94	*Setaria glauca* L Beauv	Poaceae	Banari	
95	*Sida cordata* (Burm F) Botss.	Malvaceae	Kanghi	
96	*Sida cordifolia* L.	Malvaceae	Phardbuti	Leaves paste in wound treatment
97	*Sida rhombifolia* L.	Malvaceae	Bariyari	Pounded leaves relieve swelling and fruit in headache
98	*Solanum nirgum* L	Solanaceae	Makoi, Patko	Fruit is used for digestive and liver disease. The juice obtained from plant is used to remove obesity and jaundice.
99	*Solanum viarum* Dunal.	Solanaceae	----	
100	*Solanum xanthocarpum* L.	Solanaceae	Bhatkatiya	Against fever
101	*Sonchus oleraceous* L.	Asteraceae	Dodak	Asthama
102	*Sonchus asper* L.	Asteraceae	Dodak	Whole plant is ground and powder is applied on skin affected by burning sensation
103	*Sonchus* arvensis L.	Asteraceae	---	Leaves and stems are used to control lever disorders
104	*Sphaeranthus indicus* L.	Asteraceae	Gorakhmundi	In mental illness,epilepsy jauncice etc
105	*Spilanthes paniculata* wall. Ex. D. C.	Asteraceae	----	Tooth ache
106	*Sporobolus indicus* L. Br.	Poaceae	-----	
107	*Tephrosia purpurea* L.	Fabaceae	Sarkphoo	
108	*Trianthema monogyna* L.	Ficoidaceae	Biskapra	
109	*Trianthema portulacastrum* L.	Aizoaceae	Pathar chatwa	
110	*Tribulus terrestris* L.	Zygoohyllaceae	Gukhru	
111	*Tridax procumbens* L.	Asteraceae	Phulni	
112	*Verba scum*, chinansis L.	Scrophulariaceae	-----	
113	*Vernonia cineria* L.	Asteraceae	Sahdevi	
114	*Volutarella divaricate* Benth	Asteraceae	----	

115	*Xanthium strumanuin* L.	Asteraceae	-----	Whole plant is used for malarial fever, renal complaints. The infusion of the plant is used to treat rheumatism, diseased kidneys and tuberculosis
116	*Ziziphus nummularia* (Burm F.) W.	Rhamnaceae	Jharberi , Harchatt	Source of mineral and antioxidant