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SURVEY OF HERBACEOUS WEED FLORA GROWING IN DAUND TAHSIL FROM PUNE DISTRICT (M.S.), INDIA.

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ABSTRACT:

Herbs are major components of plant diversity and are an important segment of global biodiversity. The weeds are uninvited guests in any cultivated fields, gardens, and non-irrigated places. Weeds are an excellent example of the successful struggle for existence. The agro ecosystems show association of various types of native and invasive weeds in crop plants. Weeds can be defined as the plant growing in the wrong places from farmer's point of view. In present paper attempts were made to survey the herbaceous weed flora growing in Daund Tahsil from Pune district (M.S.) India. Daund Tahsil enriches with herbaceous weed flora about 60 different species of 27 families. Each plant is studied with respect to its botanical name, local name, family name, morphological characters and flowering and fruiting period. Weed species belonging to Asteraceae, Poaceae and Amaranthaceae families are dominant in this region. Some of dominant weed species are *Alternanthera sessilis* (L.) R. Br, *Boerhavia erecta* Linn. , *Cynodon dactylon* (L.) Pers., *Cyperus rotundus* L. etc.

Keywords: *Survey, Weed Flora, Herbaceous, Daund Tahsil.*

INTRODUCTION:

Herbs are major components of plant diversity and are an important segment of global biodiversity. Weed is a plant growing where it is not desired. Weeds can be defined as the plant growing in the wrong places from farmer's point of view. In contrast to the cultivated plants, the weed is the invader an uninvited guest in any agricultural fields. Weeds are an excellent example of the successful struggle for existence. Out of 3, 00,000 plant species known in the world, about 30,000 are weeds. Most of the weeds are herbs. Weed flora of agricultural fields has large ecological amplitude, so they multiply and flourish well even in changed environmental conditions. The invasive weeds infesting the irrigated and non-irrigated agricultural fields and other ecosystems, the associations of various types of native and invasive weeds in crops and barren lands have become a serious problem today.

Weeds compete with crops in which they grow for their resources like air, water, sunlight, minerals and other soil contents etc. ultimately this results in less crop yield, poor quality of agricultural produce by way of admixture and adulteration with weed seeds etc. and consequently in less market value. Besides, weeds inflict allopathic effects on crop plants which are large through their depressive root exudates. In addition weeds also being hosts to several pathogens and other insect pests which are considered to be the natural enemies during the development of agricultural crop plants. The present investigation related to survey of weed

flora growing in Daund Tahsil from Pune district (M.S.), India.

Daund Tahsil lies in Pune district situated on the margins of Bhima River. Daund Tahsil consists of 102 villages and one urban centre. Geographically this region extends from 18^0 18' to 18^0 41' North Latitude and 74^0 07' to 74^0 51' East Longitude (Map-1). The geographical area of the study region is 1289.86 Sq. Km. (128986 hector) according to 2011 census. The average height of study area is 554 meters from mean sea level. The river 'Bhima' and its tributary rivers 'Mula' – 'Mutha' are dominating drainage pattern in study region. Agriculture is predominant in Daund tahsil and it provides livelihood to 66.93 % population. Sugarcane is one of the important cash cros in Daund tahsil. The farmers are generally reluctant in cultivation of pulses, grams and vegetables. Therefore the acreage under above crops is declined largely in study area. Total area under cultivation is 103844.94 hectares in Daund tahsil.

The earlier studies, on the weed flora of the sugarcane fields and other crop fields have been made by different workers (Adlakha *et al.* 1971; Gill & Singh, 1972; Mujumdar, 1962; Chakravarti, 1957; Patro, 1971; Diwakar, P. G. & A. A. Ansari, 1995; Oudhia P. 2001; Sahu P. K. *et al.*, 2010; Deokule S. S. & Kamble S. Y. 1984; Mulay J. R. & Sharma P. P. 2012; Prayaga M. P. *et al.*, 2011; Bharttachrya *et al.*, 2008) from different parts of India.

MATERIALS AND METHODS:

The exploration of the area under study includes the planned study tours to various places for crop weed collection. It was carried out during 2017-2020. The random sampling method was adopted for this study to note down the presence of herbaceous weed species among the irrigated and non-irrigated crop fields. Several field tours were made to cover the entire Daund Tahsil during rabbi as well as Kharif seasons. Collections were made from wide range of agricultural fields of Sugarcane, Jawar, Bajra, Cotton, Onion, Wheat, Gram, Vegetable crops, Groundnut etc. Notes were written on flower color, flowering and fruiting period, uses if any and general distribution.

After completing the herbaceous weed specimen collection from study area, herbariums of collected specimens were prepared (Jain S.K. and Rao R.R., 1978), (Diane B, Leonard F., 1998). Close up of flowering / fruiting material and habit along with associated plants were photographed. Special attention was paid to collect the plants from different areas and as far as possible all localities have been covered during all seasons. Extensive field work, exploration and collection of plants were carried out in different seasons. Identification of collected specimens was made with the help of relevant literature.

The laboratory work was mainly in the form of comprised the correct identification of collected specimens. The specimens were identified with the help of published flora like Flora of British India, Hooker J.D. (1898), Flora of presidency of Bombay, Cooke T. (1958) , The Flora of the Maharashtra state; Monocotyledons, Sharma B. D. et al (1996), Flora of Maharashtra State; Dicotyledons Vol – I, Singh N. P. and Karthikeyan, S. (2001) , Flora of Maharashtra state Dicotyledons Vol- II , Singh, N. P. et al (2001). Flora of Kolhapur District, Yadav, S. R. and Sardesai M. M. (2002), 'Flora of Baramati', Bhagat, R.B. et al , (2008) , Flora of Khandala on the Western Ghats of India, Santapau, H., (1953), Flora of

Purandar, Santapau, H. (1958), Botanical collectors' manual, Santapau, H. (1958) etc.

Names of the plant's specimens were searched concerning with the different herbaria especially Herbarium of Botanical Survey of India (B.S.I.), Western Circle, Pune, Herbarium, Department of Botany, Savitribai Phule Pune University, Pune, Agharkar Herbarium of Maharashtra Association (AHMA), Agharkar Research Institute (A.R.I.) Pune. The herbarium specimens of the collections have been deposited at the Herbarium, Department of Botany, E. S. Divekar College, Varvand, Tal-Daund, Dist- Pune (M.S.) India.

RESULTS:

The present investigation revealed that the total 60 herbaceous weed species belonging to 51 genera under 27 families growing in Daund Tahsil from Pune district (M.S.), India. Out of total 60 herbaceous weed species, 52 species, 44 genera & 24 families belongs to Dicotyledons, while 8 species, 7 genera & 3 families are of Monocotyledons. During the work it is observed that family. Asteraceae is dominant family of herbaceous weed species consisting of 10 species and 9 genera of area followed by Poaceae (6 species & 5 genera), Amaranthaceae (5 species & 5 genera), and Euphorbiaceae (5 species & 4 genera) (Table No. 1). The floristic diversity of weed species is also analyzed with respect to habit diversity. Out of 60 herbaceous weed species 08 species are of grasses. The dominant weeds among weed flora of the area are *Alternanthera sessilis* (L.) R. Br., *Boerrhavia erecta* Linn., *Cynadon dactylon* (L.) Pers., *Cyperus rotundus* Linn. etc.

DISCUSSION:

The present information of herbaceous weed flora growing in Daund Tahsil is an important investigation and has applied significance in effective weed management and crop yield improvement process. The herbaceous weed flora work at regional level would be a good source of importance on technical and taxonomic data. The weed control problem is major challenge to the farmers because of increasing labor cost. However different parts of the weeds are very useful in various disorders. These weeds can become an additional source of income for farmers, if they are made aware about the medicinal utilities of these weeds. There is need to conduct proper study on the control of the population of these weed species within a plant population as well as their medicinal utilities.

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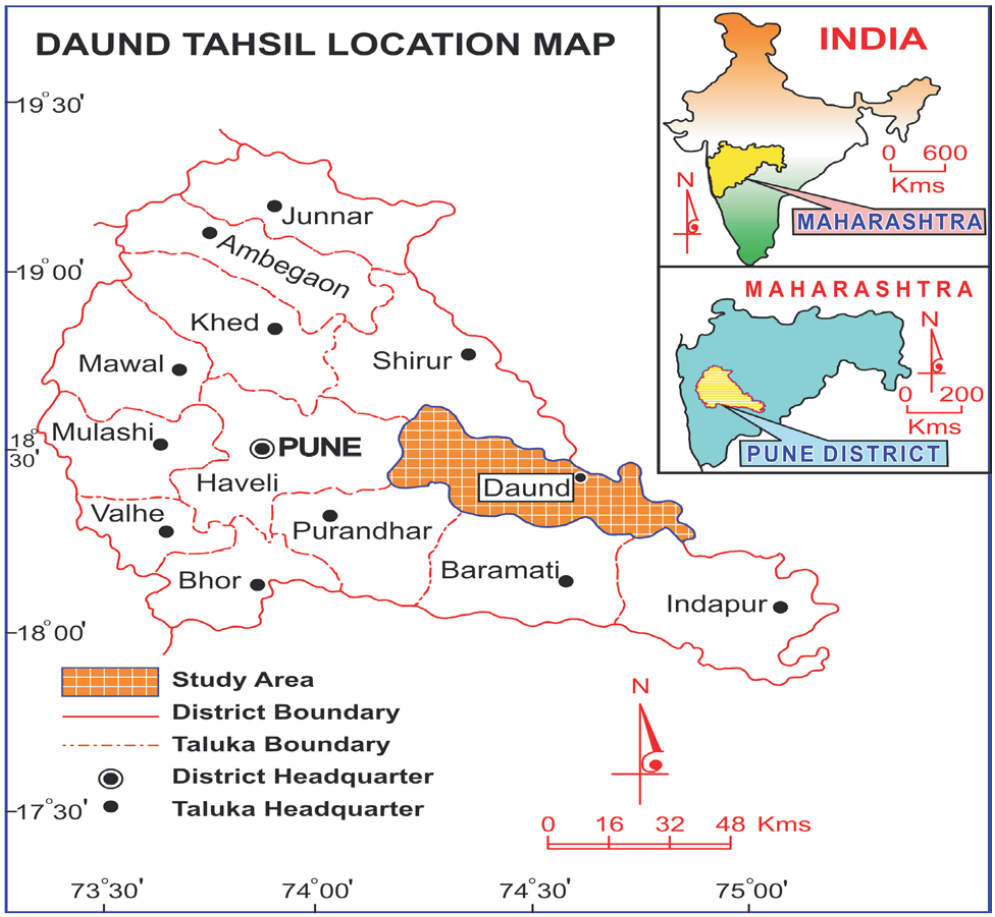
Table No.- 1. Records of Herbaceous Weed flora Growing in Daund Tahsil

Family	Botanical Name	Local Name	Fl. & Fr. Period	Ref. No.
I)DICOTYLEDONS				
A)POLYPETALAE				
Papaveraceae	*Argemone mexicana* Linn.	Pivala Dhotra	Almost throughout year	JGB-36
Brassicaceae	*Thalspi arvense* Linn.	Ran Mohari	Mar-April	JGB-212
Cleomaceae	*Cleome gynandra* Linn.	Pandhari Tilwan	June- September	JGB-47
Cleomaceae	*Cleome simplicifolia* (Camb.) Hook	---	July.-Nov.	JGB-82
Cleomaceae	*Cleome viscosa* Linn.	Pivali Tilwan	June- September.	JGB-91
Polygalaceae	*Polygala arvensis* Willd.	---	Jun.-Feb.	JGB-312
Portulacaceae	*Portulaca oleracea* Linn.	Ghol	Throughout year.	JGB-152
Portulacaceae	*Portulaca quadrifida* Linn.	Ranghol	Sept.-Feb.	JGB-122
Malvaceae	*Sida acuta* Burm.	Bala	Sept.-Feb.	JGB-6
Zygophylaceae	*Fagonia schweinfurthii* (Hadidi.) Hadidi.	Dhamasa	Oct.-Dec.	JGB-118
Zygophylaceae	*Tribulus terestris* Linn.	Sarata	Feb.-Nov	JGB-2
Oxalidaceae	*Oxalis corniculata* Linn.	Ambushi	Throughout year.	JGB-209
Sapindaceae	*Cardiospermum helicacabum* Linn.	Kapal phodi	July-Dec.	JGB-56
Fabaceae	*Alysicarpus pubescens* Law.		Sept.-Dec	JGB-127
Fabaceae	*Crotalaria hebecarpa* (DC.) Rudd.	Godhadi	July-Feb.	JGB-92
Fabaceae	*Cullen corylifolia* (L.) Medik	Bavachi	Sept.-Jan.	JGB-124
Fabaceae	*Indigofera cordifolia* Heyne	Godhadi	July-Nov	JGB-273
Fabaceae	*Indigofera glandulosa* Wendl.	Barbada	Aug.-Nov	JGB-15
Cucurbitaceae	*Mukia maderaspatana* (L.) Roem	Tuntani	Sept.-Dec.	JGB-170
B) GAMOPETALAE				
Asteraceae	*Ageratum conyzodies* L.	Osadi	Aug-Apr.	JGB-173
Asteraceae	*Bidens biternata* (Lour.) Merr. & Scherif.	Chikta	Aug.-Oct.	JGB-42
Asteraceae	*Caesulia axillaries* Roxb.	Maka	Aug.-Feb.	JGB-81
Asteraceae	*Emilia sonchifolia* (L.) DC	Sadmandi	Aug.-Dec.	JGB-57
Asteraceae	*Flaveria trinervia* (Spreng.) C. Mohr.	Bajirao	Mar.-Apr.	JGB-78
Asteraceae	*Lagascea mollis* Cav.	---	Throughout year	JGB-84
Asteraceae	*Launaea intybacea* (Jacq.) Beauv.	---	Nov.-.Jan.	JGB-44
Asteraceae	*Launaea procumbens* (Roxb.) Ramayya	Pathri	Oct.-Feb.	JGB-153
Asteraceae	*Sonchus asper* (L.) Hill.	Mhatari	June-Oct.	JGB-154
Asteraceae	*Tridax procumbens* Linn	Kutkuti	Throughout year.	JGB-25

Apocynaceae	*Catharanthus pusillus* (Murr.) G. Don	---	July-Oct.	JGB-176
Asclepiadaceae	*Pergularia daemia* (Forssk.) Chiov.	Utarni	July-Feb.	JGB-366
Boraginaceae	*Trichodesma indicum* (Linn.) Lehm.	---	Aug.-Feb.	JGB-45
Convolvulaceae	*Convolvulus arvensis* Linn.	Chandvel	July-Mar.	JGB-117
Convolvulaceae	*Evolvulus aslinoides* (L.) L.	Shankhapushpi	Almost throughout year.	JGB-133
Solanaceae	*Physalis minima* Linn.	Ran Popati	Oct.-Mar.	JGB-904
Scrophulariaceae	*Striga densiflora* (Benth.) Benth.	---	Oct-Jan	JGB-513
Scrophulariaceae	*Striga gesnerioides* (Wild.) Vatke	---	Oct-Jan.	JGB-460
Lamiaceae	*Leucas aspera* (Willd.) Link.	Shankroba	Sept-Mar.	JGB-39
Lamiaceae	*Leucas longifolia* Benth.	Dudhani	Sept-Mar.	JGB-65
C) APETALAE				
Nyctaginaceae	*Boerhavia erecta* Linn.	Punarnava	Sept.-Dec.	JGB-64
Amaranthaceae	*Achyranthus aspera* Linn.	Aghada	Oct. Mar.	JGB-61
Amaranthaceae	*Alternanthera sessilis* (L.) R. Br	Chimu-Kata	Throughout year.	JGB-123
Amaranthaceae	*Amaranthus roxburghianus* Nevski	Tandulja	June-Dec	JGB-221
Amaranthaceae	*Digera muricata* (Linn.) Mart.	Kunjir	June-Feb.	JGB-400
Amaranthaceae	*Gomphrena serrata* Linn.	---	June-Jan.	JGB-222
Aristolochiaceae	*Aristolochia bracteolata* Lam.	Badak Phul	July-Nov.JGB-309	JGB-309
Euphorbiaceae	*Chcrozophora rottleri* (Gies.) Juss	---	Nov.-May.	JGB-584
Euphorbiaceae	*Croton bonplandianus* Baill	Jamalgota	Aug.-Jan.	JGB-627
Euphorbiaceae	*Euphorbia geniculata* Orteg.	Dudhani	Sept.-Mar. JGB-370	JGB-370
Euphorbiaceae	*Euphorbia hirta* Linn.	Dudhani	Throughout the year.	JGB-203
Euphorbiaceae	*Phyllanthus madraspatensis* Linn.	---	July-Dec.	JGB-581
Urticaceae	*Pilea microphylla* (Linn.) Liebm.	---	Aug.-Dec.	JGB-595
II) MONOCOTYLEDONS				
Liliaceae	*Asphodelous tenuifolius* Cavan.	---	Nov.-Mar.	JGB-848
Cyperaceae	*Cyperus rotundus* L.	Lavala	June-Nov.	JGB-382
Poaceae	*Brachiaria eruciformis* (J .E. Sm.) Griseb.	Shimpi	Throughout year	JGB-250
Poaceae	*Brachiaria ramosa* (L.) Stapf	Chapar	Aug.-Oct.	JGB-372
Poaceae	*Cynodon dactylon* (L.) Pers.	Harali	Througout year.	JGB-59
Poaceae	*Dinebra retroflexa* (Vahl.) Panz.	Velu	Aug.-Feb.	JGB-860
Poaceae	*Eragrostis unioloides* (Retz.) Nees	---	Throughout the year.	JGB-490
Poaceae	*Setaria verticillata* (L.) P. Beauv.	---	Aug.-Oct.JGB-317	JGB-317



Map-1: Geographical location of Pune District in Maharashtra State (India) and Daund Tahsil in Pune district