

## AN ASSESSMENT OF NATIVITY AND ACCLIMATIZATION OF CULTIVATED PLANT SPECIES IN HINGANGHAT TALUKA OF WARDHA DISTRICT (MS)

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### ABSTRACT

In the present paper 93 plant species belonging to 43 families of cultivated plant species have been recorded from Hinganghat taluka of Wardha district. These families include Fabaceae with dominant with 22 species followed by Poaceae and Cucurbitaceae (7), Umbellifereae (5), Solanaceae (5), Rutaceae (4), Liliaceae (4), Brassicaceae (3), Apocyanaceae (2), Zingiberaceae (2), Chenopodiaceae (2), Malvaceae (2), Anacardiaceae (2), Nyctaginaceae (2) Convolvulaceae (1), Amaranthaceae (1), Pedaliaceae (1), Vitaceae (1), Annonaceae (1), Myrtaceae (1), Rhamanaeaceae (1), Cariaceae (1), Puniaceae (1), Sapotaceae (4), Acanthaceae (1), Labiatae (1), Verbenaceae (1), Lythraceae (1), Asteraceae (1), Moraceae (1), Nymphaceae (1). Rosaceae (1), Moringaceae (1), Casurinaceae (1), Tiliaceae (1), Linaceae (1), Portulacaceae (1) and Arecaceae (1). Plant species are herbs, shrubs, trees and climbers. People depend on plants for food, clothes, shelter and medicine. These species are very useful for human welfare and hence monitors and controlling is necessary. The non-native plant species acclimatize in Indian environment. The process of acclimatization of cultivated plants to the soil environment has fully been survived.

**Keywords:** Acclimatize, Families, Habitats and Nativity.

### INTRODUCTION

The cultivation of crop is one of the oldest occupations of mankind. The primitive man obtained his food from wild plants. But with the advance of civilization, man started cultivation of plants to meet the requirements of his food. These plants meet most requirements both for man and his domesticated animals. Some of the plant species are also used as spice and condiments, as an antidote of snake venom, scorpion sting and dog bite. And others are used as incense perfumes, insecticide and many other diseases. The contribution of Nikolai Ivanovich Vavilov (1887-1943), on the origin of cultivated plants was a milestone in this field. The non-native plant species are acclimatized in Indian environment. The process of acclimatization of cultivated plants to the soil environment enables them to survive. Some plant species acclimatize quickly due to faster root and shoot growth. These species are not threat to

biodiversity and ecosystems instead of they fulfill the needs of people. These plant species provide food, shelter, economics and even human health. Such species are either introduced deliberately or get introduced unknowingly. Today they are fast growing, naturalized in the environment, dominate and establish themselves as an important part of the ecosystem.

The nativity of plants for all the taxa showed that the plants from other regions of the world are more followed by plants from Indian origin. The contribution of trees, shrubs, herbs and climbers from the Himalayan region was 6%, 12%, 3% and 12% respectively.

Hinganghat is one of the talukas of Wardha district situated in 20°18' to 20° and 49'N and 78°32' to 79°14' E latitude. The major portion of the total annual rainfall is received during June to September each year. The average rainfall of Hinganghat Tehsil is 1071.70 mm. The climate is

hot and dry. There are three season namely cold, hot and monsoon.

### METHODOLOGY

The nativity of the species is provided based on Mathew (1969)<sup>1</sup>, Sharma and Pandey (1984)<sup>2</sup> and Negi and Hajra (2007)<sup>3</sup>. Survey of different localities of Hinganghat taluka of Wardha

district was conducted at regular intervals and information of the plants were recorded. The collected plants were identified with the help of flora of Nagpur district (Ugemuge, 1986)<sup>4</sup> and flora of Maharastra (Almeida, 1996)<sup>5</sup>. Information of each species will be recorded with English, Hindi and Marathi name, Botanical name, Family name, Habits and Nativity.

### RESULT AND OBSERVATION

**Table 1: cultivated plant species and their nativity.**

**Key to symbols and abbreviations: Herb-H, Shrub-S, Tree-T and Vine-V**

S.NO	Vernacular Name	Botanical Name	Family Name	Habit	Nativity
As food:					
1	E-Wheat, H-Gehun, M-Gahu	<i>Triticum aestivum</i> L.	Poaceae	H	Northern Iraq and Northeastern Europe/South-West Asia
2	E-Maize, Corn, H-Makka, M-Makai	<i>Zea mays</i> L.	Poaceae	H	Tropical South America/Mexico, Central and West America
3	E-Oats, H-Jai, M-Jai	<i>Avena sativa</i> L.	Poaceae	H	Central Europe
4	E-Sorghum, H-Juar, M-Jowar	<i>Sorghum vulgare</i> Pers.	Poaceae	H	Egypt
5	E-Soybean, H-Soybean, M-Soybean	<i>Glycine max</i> (L.) Merr.	Fabaceae	H	South East Asia
6	E-Gram, H-Chana, M-Harbara	<i>Cicer arietinum</i> L.	Fabaceae	H	South Europe/South West Asia
7	E-Pigion pea, H-Arhar, M-Tur	<i>Cajanus cajan</i> (L.) Millsp.	Fabaceae	H	Africa
8	E-Lentil, H-Masur, M-Masur	<i>Lens culinaris</i> Medic (= <i>Lens esculenta</i> Moench)	Fabaceae	H	South-West Asia/south-Western Asia and the mediterranean
9	E-Lime bean, H-Sem phali, M-Pavta	<i>Phaseolus lunatus</i> L.	Fabaceae	H	America
10	E-Broad bean, H-Bakla, M-Mothi bin	<i>Vicia faba</i> L.	Fabaceae	H	Algeria/South Western Asia
11	E-Jackbean, H-Badisem, M-Badi-sem	<i>Conavalia gladiata</i> (jacq.) DC	Fabaceae	H	Hawaiians
As Vegetables:					
12	E-Lablab, H-Val, M-Wal	<i>Dolichos lablab</i> L.	Fabaceae	H	Africa
13	E-Gardenpea, H-Matar, M-Watana	<i>Pisum sativum</i> L.	Fabaceae	H	South Europe/West Asia/Ethiopia
14	E-Peanuts, H-Mungphali, M-Bhuimung	<i>Arachis hypogea</i> L.	Fabaceae	H	America/Brazil
15	E-Sweet potato, H-Shakkarkand, M-Ratalu	<i>Ipomea batatas</i> L.	Convolvulaceae	V	Tropical America
16	E-Beet root, H-Chukander, M-	<i>Beta vulgaris</i> L.	Chenopodiaceae	H	Europe or around Western Asia and Africa
17	E-Carrot, H-Gagar, M-Gazara	<i>Daucus carota</i> L.	Umbelliferae	H	Central Asia
18	E-Potato, H-Alu, M-Batata	<i>Solanum tuberosum</i> L.	Solanaceae	H	South America
19	E-Onion, H-Pyaz, M-Kanda	<i>Allium cepa</i> L.	Liliaceae	H	Southern Asia or the Mediterranean/South West Asia
20	E-Garlic, H-Lasan, M-Lasun	<i>Allium sativum</i> L.	Liliaceae	H	Central Asia and Eastern mediterranean
21	E-Cabbage, H-Pattagobhi, M-Kobi	<i>Brassica oleracea</i> L. var. <i>Capitata</i>	Brassicaceae	H	Mediterranean region and Southern England, Wales and Northern France/Britain and South Western Europe
22	E-Sarson, H-Sarson, M-Rai	<i>Brassica campestris</i> L. var. <i>sarson</i>	Brassicaceae	H	Mediterranean region
23	E-Cauliflower, H-Phoolgobhi, M-Phulkobi	<i>B. oleracea</i> L. var. <i>botrytis</i>	Brassicaceae	H	Cyprus and the Mediterranean coast
24	E-Spinach, H-Palak, M-Palak	<i>Spinacia oleracea</i> L.	Chenopodiaceae	H	South-Western Asia
25	E-Fenugreek, H-Methi, M-Methi	<i>Trigonella foenum-graecum</i> Linn	Fabaceae	H	South Europe/Eastern Europe and Ethiopia
26	E-Amaranthus, H-Chaulai, M-Cawali	<i>Amaranthus tricolor</i> L.	Amaranthaceae	H	South America
27	E-Tomato, H-Tamator, M-Bedhuru	<i>Lycopersicon esculentum</i> Mill.	Solanaceae	H	Peru-Ecuador
28	E-Lady's finger, H-Bhindi, M-Bhendi	<i>Abelmoschus esculentus</i> (L.) Moench	Malvaceae	H	Tropical Africa
29	E-Pumkin, H-Kaddu, M-Kohal	<i>Cucurbita pepo</i> L.	Cucurbitaceae	V	Mexico and USA
30	E-Bottle gourd, H-Kaddu lauki, M-Bhopala	<i>Lagenaria sinceraria</i> (Molina) Standley (= <i>L. vulgaris</i> )	Cucurbitaceae	V	Africa
31	E-Bitter melon, H-Karle, M-Karle	<i>Mimordica charantia</i> L.	Cucurbitaceae	V	Africa and Asia
32	E-Cucumber, H-Kheera, M-Kakadi	<i>Cucumis sativus</i> L.	Cucurbitaceae	V	South Asia
33	E-Kovai, H-Kundur, M-Kanduri	<i>Coccinia grandis</i> Wight & Arn	Cucurbitaceae	V	Africa to Asia

34	E-Flat pea, H-Khesari, M-Lakhori	<i>Lathyrus sativus</i> L.	Fabaceae	H	Southern Europe and Western Asia
35	E-Sesame, H-Til, M- Til	<i>Sesamum indicum</i> L.	Pedaliaceae	H	Africa
36	E-Turmeric, H-Haldi, M-Haldi	<i>Curcuma longa</i> L. ( <i>curcuma domestica</i> Valet.)	Zingiberaceae	h H	South-Eastern Asia
As fruit:					
37	E-Grapes, H-Angur, M-Draksha	<i>Vitis vinifera</i> L.	Vitaceae	V	Shores of Caspian sea
38	E-Lemon, H-Bara nimbu, M-Limbu	<i>Citrus liman</i> (L.) Burm. f.	Rutaceae	T	South-Eastern Asia
39	E-Sour orange, H-Santra, M-Santra	<i>Citrus reticulata</i> Blanco.	Rutaceae	T	South-Eastern Asia/South China
40	E-Mango, H-Aam, M-Ambba	<i>Mangifera indica</i> L.	Anacardaceae	T	Sothorn Asia/South-East Asia
41	E-Sugarapple, H-Sitaphal, M-Sitaphal	<i>Annona squamosa</i> L.	Annonaceae	T	South America and West Indies
42	E-Guava, H-Amrund, M-Jamba	<i>Psidium guajava</i> L.	Myrtaceae	T	Tropical America
43	E-Jujuba, H-Ber, M- Bor	<i>Zizyphus jujube</i> Lam.	Rhamnaceae	S	China
44	E-Papaya, H-Papeeta, M-Papaya	<i>Carica papaya</i> L.	Caricaceae	S	West Indies or Mexico
45	E-Pomegranate, H-Anar, M-Dalimba	<i>Punica granatum</i> L.	Punicaceae	T	Iran
46	E-Tamarind, H-Imali, M-Chinch	<i>Tamarindus indica</i> Linn.	Fabaceae	T	Mexico
47	E-Watermelon, H-Tarbooz, M-Tarbuji	<i>Citrullus vulgaris</i> Schrad.	Cucurbitaceae	V	Tropical Africa, Asia
As ornaments:					
48	E-Mahua, H-Mahua, M-Moh	<i>Madhuca indica</i> Gmel. <i>Madhuca longifolia</i> (Koen.)Mac.	Sapotaceae	T	Northern Africa, Europe and Asia
49	E-Flaxseed, H- Alsi, M- Javas	<i>Linum usitatissimum</i> L.	Linaceae	H	Mediterranean region and southwest Asia
50	E-Aloe, H- Gheekumari, M-Khorpad	<i>Aloe vera</i> L. Burm.	Liliaceae	H	West Indies or Mediterranean region
51	E-Vasaka, H-Adosa, M-Adulsa	<i>Adhatoda vasica</i> Nees.	Acanthaceae	H	Asia
52	E-Holy basil, H-Tulsi, M-Tulas	<i>Ocimum sanctum</i> L.	Labiatae (Lamiaceae)	H	South Asia
53	E-Coriander, H-Dhania, M-Kothambari	<i>Coriandrum sativum</i> L.	Umbelliferae (Apiaceae)	H	Mediterranean region
54	E-Albizia, H-Siris, M- Siris	<i>Albizia lebbek</i> Benth.	Fabaceae	T	Indomalaya, New Guinea and Northern Australia
55	E-Babul, H-Babul, M-Babhul	<i>Acacia nilotica</i> (L.)Willd.	Fabaceae	T	North Africa
56	E-Sissoo, H-Shisham, M-Shisham	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	T	The Sub-Himalayan tracts and outer Himalayan valleys
57	E-Teak, H-Sagwan, M-Sagn	<i>Tectona grandis</i> L. F.	Anacardaceae	T	South and Southeast Asia
58	E-Asafoetida, H-Hing, M-Hing	<i>Ferula asafoetida</i> L.	Umbelliferae	T	Iran
59	E-Chillies, H-Lal-mirch, M-Mirchi	<i>Capsicum frutescens</i> L.	Solanaceae	H	West Indies and Tropical America
60	E-Eucalyptus, H-Nilgiri, M-Nilgiri	<i>Eucalyptus globules</i> Labill.	Verbaenaceae	T	Australia
61	E-Henna, H-Henna, Mehandi, M-Mehandi	<i>Lawsonia inermis</i> L.	Lythraceae	H	North Africa and Asia
62	E-Sunflower, H-Surajmukhi, M-Suryaful	<i>Helianthus annus</i> L.	Asteraceae	H	North America
63	E-Peepal, H-Pipal, M-Peepal	<i>Ficus religiosa</i> L.	Moraceae	T	South East Asia
64	E-Ajwain, H-Ajwain, M-Owa	<i>Cumin cyminum</i> L.	Umbelliferae (Apiaceae)	H	East Mediterranean
65	E-Lotus, H-Kamal, M-Kamal	<i>Nelumbo nucifera</i> Gaertn	Nymphyaceae	H	Tropical Asia and Queensland, Australia
66	E-Purslane, H-Ghol, M-Ghorbhaji	<i>Portulaca oleracea</i> L.	Portulacaceae	H	North America
67	E-Rose, H-Gulab, M-Gulab	<i>Rosa indica</i> L.	Rosaceae	S	Europe, North America and Northwest Africa
68	E-Nerium, H- , M-Kanher	<i>Nerium indicum</i> Miller	Apocynaceae	S	Tropical and Sub tropical Asia
69	E-Kaghzi nimbu, H- , M-Gaznibhu	<i>Citrus aurantifolia</i> (Criston)	Rutaceae	S	East Indies
70	E-Pearl millet, H- Bajara, M-Bajri	<i>Pennisetum typhoides</i> (Burm. f.)Stapf Ex Hubb.	Poaceae	H	Africa
Others:					
71	E-Bael, H-Bel, M-Bel	<i>Aegel marmelos</i> (L.) Corr.	Rutaceae	T	Arabia
72	E-Kachnar, H-Kachnar, M-Kachnar	<i>Bauhinia variegata</i> Linn.	Fabaceae	T	South Asia and Southeast Asia
73	E-eacock flower, H-Guletura, M-Sankasur	<i>Caesalpinia pulcherrima</i> Linn. (Swartz)	Fabaceae	T	West Indies, America
74	E-Ginger, H- Adrak, M-Ale	<i>Zingiber officinale</i> Rosc.	Zingiberaceae	H	South Eastern Asia
75	E-Fennel, H-Saunf, M-Badishep	<i>Foeniculum vulgare</i> Gaewtn (=F. officinale)	Apiaceae	H	Southern Europe and the Mediterranean
76	E-Asparagus, H-Satawari, M-Shatavari	<i>Asparagus racemosus</i> Wild.	Liliaceae	H	Temperate Europe and western Asia
77	E-Chillies, H-Mirch, M-Mirchi	<i>Capsicum annum</i> L.	Solanaceae	H	Mexico/Tropical America and the West Indies
78	E-Coconut, H-Nariyal, M- Naral	<i>Cocos nucifera</i> L.	Arecaceae	T	Pacific coast of Tropical America
79	E-Drumstick, H-Munaga, M-Shevaga	<i>Moringa oleifera</i> Lamk.	Moringaceae	T	Africa, Asia
80	E-Siamese senna, H-Seemia, M-Kassod	<i>Cassia simea</i> LAMK.	Fabaceae	T	Southeast Asia from Indonesia to Srilanka
81	E-Royal poinciana, H-Gulmohri, M-Gulmohar	<i>Delonix regia</i> (L.) Gamble	Fabaceae	T	Madagascar
82	E-Conch grass, H-Doob, M-Durva	<i>Cyndon dactylon</i> (L.) Pers	Poaceae	H	Africa
83	E-Four O' clock plant, H-Lal-gulabas, M-Gulcheri	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	S	Tropical America

84	E-nightblooming jasmine, H-Ratrani, M-ratkirani	<i>Cestrum nocturnum</i> L.	Solanaceae	S	West Indies
85	E-Bougainvillea, H-Booganbel, M-Booganvel	<i>Bougainvillea spectabilis</i> Willd.	Nyctaginaceae	V	Brazil
86	E-Whistling pine, H-Janglisura, M-Sura	<i>Casuarina equisetifolia</i> Forst.	Casurinaeae	T	Australia
87	E- Muskmelon, H-, M-Tarbutj	<i>Cucumis melo</i> var. <i>reticulatus</i> L.	Cucubitaceae	V	Southern Asia
88	E- Sugarcane, H-Ganna, M-U	<i>Saccharum officinarum</i> L.	Poaceae	H	South Pacific (New Guinea)
89	E- Cotton, H-Kapas, M-Kapus	<i>Gossypium hirsutum</i> L.	Malvaceae	H	Old world-India, India-china and Tropical Africa. New world-Mexico or central America
90	E- Jute, H-Patsan, M-Boru	<i>Corchorus capsularis</i> ( <i>C. olitorius</i> )	Tiliaceae	H	Malaya or Sri Lanka
91	E- Sun-hemp, H-Sannai, M-Tag	<i>Crotalaria juncea</i> L.	Fabaceae	H	Asia
92	E- Periwinkle, H-, M-Sadaphuli	<i>Catharanthus roseus</i> Don.	Apocynaceae	H	Madagascar
93	E-, H-Subabul, M-Subhabul	<i>Leucaena leucocephala</i> (Lam.) de Witt	Fabaceae	T	Central America

### DISCUSSION AND CONCLUSION

In India, total 202 species in 44 genera and under 23 families were documented as cultivated plant species. In the present study total 93 species were observed. There were 80 herbs (80%), 04 shrubs (13.23%), 02 trees (3.33%) and 2 climber (8%) (Table-1). Among the families, Fabaceae was the dominant with 22 species followed by Poaceae and Cucurbitaceae each with seven species, Umbellifereae and Solanaceae each with five species, Rutaceae and Liliaceae each with four species, Brassicaceae with three species, Apocyanaceae, Zingiberaceae, Chenopodiaceae, Malvaceae, Anacardiaceae and Nyctaginaceae each with two species and Convolvulaceae, Amaranthaceae, Pedaliaceae, Vitaceae, Annonaceae, Myrtaceae, Rhamanaeae, Cariaceae, Puniaceae, Sapotaceae, Acanthaceae, Labiatae, Verbenaceae, Lythraceae, Asteraceae, Moraceae, Nymphaceae, Rosaceae, Moringaceae, Casurinaeae, Tiliaceae, Linaceae, Portulacaceae and Arecaceae each with one species. Prominently the farmers depend on these species especially Poaceae, Brassicaceae and Fabaceae. These species are very useful for human welfare and hence to pay more attention with the help of taxonomists, ecologists, researchers and administrations is necessary to monitor and control. These are the non-native plant species; however, these are acclimatized in the environment. They acclimatize due to faster root and shoot growth. These species are not harmful to the environment and also has economic value. In this quick overview we have

had a glimpse of the knowledge of Nativity of cultivated plants. These observations are well supported by the previous studies of Rothe (2011)<sup>6</sup> and Singh *et al.* (2003)<sup>7</sup>.

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