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Some Medicinal and Aromatic Shrubs introduced in Herbal Garden for their Propagation and Ex-situ Conservation.

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Abstract

Medicinal plants are a category of the plants that includes a specific chemical compounds in their body and are useful for multifold directions. These are also variable in their habits like herbs, shrubs, trees, climber and creepers etc.

In present study there are 35 shrubs of the Medicinal and Aromatic plants were selected and introduced in Herbal Garden for their propagation as well as for ex-situ conservation. In terms of their height these are short than trees and long than herbs. These are also marked for their woody, much branched in nature and for multiple type of their growth tendency and propagation mode.

Shrubs efficiently propagating by using their many kinds of the plant propagules like Seeds, Stem cuttings etc. Each part of the Medicinal and Aromatic plant used for above purpose has been prepared before their propagation such as seeds were deep in water for early germination. Underground plant parts also initiated for formation of new adventitious buds for frequently development of the new individual plants. Collect, propagated plants are further planted in the field of Herbal Garden with providing facilities required for their better growth and development. Above strategy was applied not only for their propagation but also for their ex-situ conservation in Herbal Garden.

Keywords: Medicinal Shrubs, Propagation, Ex-situ conservation, Herbal Garden.

1. Introduction

Propagation of the Medicinal and Aromatic plants is not only important for their multiplication in number but also give a chance to the plants to make their much copies which support their sustainable and long term presence in nature. Due to various natural and manmade reasons plant population facing problem day by day and many of them going to extinct if proper protection strategy is not applied in certain time of their life.

Conservation and cultivation of threatened and high valued medicinal plants in north East India was studied by Shankar and Rawat 2013 [12]. Review on a tuberous, endangered medicinal plant was assessed by Ade and Rai 2009 [1]. Rajkumar *et al* 2011 [11] recorded Ex-situ conservation of Medicinal plants at university of agricultural sciences, Bangalore, Karnataka.

Diversity, Distribution and indigenous uses of medicinal plants recorded by Sharma and Samant 2014 [9]. Some medicinal plants of tehsil Joginder nagar district Mandi H.P., India was carried out by Kumar N. 2014 [8]. Indigenous knowledge of medicinal plants among tribals was focused by Geetha 2010 [6] whereas plant biodiversity of Akola and Washim [4] district of M.H. for medicinal use was examined by Bhadange 2011 [4]. Exploration of ethno-medicinal values of imperative plants with shrubs was analyzed by Majeed *et al* 2011 [10]. Ethnobotanical study of some elite plants belonging to dir, kohistan valley, Khyber pukhtunkhwa, Pakistan was studied by Hazrat *et al* 2011 [7]. Wild medicinal plants of Manipur included in red list was recorded by Singh *et al* 2009 [14]. Yashwant 2014 [16] studied on Germination and Growth Status of Endangered Medicinal Plant *Caesalpinia bonduc* (Linn.) Roxb. Commercially Important Medicinal Plants of South Africa reviewed by Street and Prinsloo 2013 [15]. Bhat *et al* 2013 [5] focused on Need and importance of conservation of *Tinospora cordifolia*-a threatened medicinal plant. Diversity, Ethno-medicinal uses, Conservation of the medicinal plants studied by Lawal 2010 [9], Adhikari *et al* 2007 [2], Adhikari 2010 [3].

2. Materials and Methods

There are 35 shrubs of Medicinal and Aromatic plants were collected from various parts of the

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Chhattisgarh and introduced in Herbal Garden for their further multiplication and for ex-situ conservation purpose.

Mostly seeds are used to propagate the plants whereas older stem cutting also found to be suitable for above purpose. Some shrubs also propagated using their seeds and stem cutting both the methods.

Plant propagules like Seeds, Stem cutting, Rhizome etc are selected on the basis of their maturity and health. These are developed to form new plantlets in shade and are after their maturation shifted to the suitable sites of the Herbal Garden. Water provided as per need of the planted Medicinal and Aromatic plants. All other management practice has been also followed to develop them.

3. Results & Discussion

Collected medicinal shrubs/plant parts were introduced in Herbal Garden and are planted directly in the selected beds of the field and some were also propagated in poly bags. Plant propagation was made using their seeds or by their vegetative

parts like stem cutting, Tuber, etc than after maturation transferred to the field.

Medicinal shrubs introduced in Herbal Garden for ex-situ conservation purpose are listed in Table - 1 with their relevant information like Common name, Botanical name, family and Propagation mode. Planted shrubs are of different species shown in Table - 2. Maximum 4 species of family Fabaceae and 3 species each of family Apocynaceae, Rutaceae were introduced during the tenure of the study. Collected MAPs of shrub habit are shown variation in their propagation methods as 17 plants propagated by their seeds, 9 by Stem cutting, 7 by Seed/Stem cutting, 01 - 01 plants by Rhizome, Seed/Tuber arranged in Table - 3.

20 Medicinal, 13 Aromatic and 01 dye producing plants were introduced and one endangered/red listed Medicinal shrub was also introduced for their further propagation as well as their ex-situ conservation. As it is a xerophytic nature plant showing better multiplication by their stem cutting mode.

Table 1: Shrubs of Medicinal and Aromatic values introduced in Herbal Garden.

| S. No. | Common Name | Botanical Name | Family | Mode of Multi-plication |
|--------|----------------------------|---|----------------|-------------------------|
| 1. | Adusa | <i>Adhatoda vasica</i> Linn. | Acanthaceae | Stem cutting |
| 2. | Aithi | <i>Helicteres isora</i> Linn. | Sterculiaceae | Seed/Stem cutting |
| 3. | Akol | <i>Alangium salvifolium</i> Lamarck | Cornaceae | Seed |
| 4. | Anar | <i>Punica granatum</i> Linn. | Punicaceae | Seed |
| 5. | Bixa | <i>Bixa orellana</i> Linn. | Bixaceae | Seed |
| 6. | AK | <i>Calotropis procera</i> Aiton. | Asclepiadaceae | Seed |
| 7. | Chhoti ari | <i>Clerodendron inerme</i> (L.) Gaertn | Verbenaceae | Stem cutting |
| 8. | Gandhraj | <i>Gardenia jasminoides</i> J. Ellis | Rubiaceae | Stem cutting |
| 9. | Gataran | <i>Caesalpinia crista</i> Linn. | Fabaceae | Seed |
| 10. | Gudhal | <i>Hibiscus rosa-sinensis</i> Linn. | Malvaceae | Stem cutting |
| 11. | Guggul | <i>Commiphora wightii</i> (Arn.) Bhandari | Burseraceae | Stem cutting |
| 12. | Indian Jui | <i>Jasminum molle</i> R.Br | Oleaceae | Stem cutting |
| 13. | Kachnar | <i>Bauhinia variegata</i> Linn. | Fabaceae | Seed |
| 14. | Kaner | <i>Nerium indicum</i> F. Le. Makino | Apocynaceae | Seed/Stem cutting |
| 15. | Kapur | <i>Cinnamomum camphora</i> (L.) J. Presl. | Lauraceae | Seed/Stem cutting |
| 16. | Karonda | <i>Carissa carandas</i> Linn. | Apocynaceae | Seed |
| 17. | Kewda | <i>Pandanus tectorius</i> Soland Ex. | Pandanaceae | Stem cutting |
| 18. | Khair | <i>Acacia catechu</i> (L.F.) Willd. | Fabaceae | Seed |
| 19. | Lemon | <i>Citrus lemon</i> (L.) Burm. F. | Rutaceae | Seed |
| 20. | Lemon bush | <i>Lippia javanica</i> Burm. f.) Spreng. | Verbenaceae | Stem cutting |
| 21. | Madhukamani | <i>Murraya paniculata</i> (L.) Jack. | Rutaceae | Seed |
| 22. | Meetha neem | <i>Murraya koenigii</i> Spreng. | Rutaceae | Seed |
| 23. | Mehandi | <i>Lawsonia inermis</i> Linn. | Lythraceae | Seed |
| 24. | Nirgundi | <i>Vitex negundo</i> Linn. | Verbenaceae | Seed/Stem cutting |
| 25. | Parijat | <i>Nyctanthes arbour-tristis</i> Linn. | Oleaceae | Seed/Stem cutting |
| 26. | Phalsa | <i>Grewia asiatica</i> L. | Malvaceae | Seed/Stem cutting |
| 27. | Ram Datun | <i>Smilax azorica</i> H.S. & P.S. | Smilacaceae | Rhizome |
| 28. | Ramphal | <i>Annona reticulata</i> Linn. | Annonaceae | Seed |
| 29. | Rangoon ki bel | <i>Quisqualis indica</i> Linn. | Combretaceae | Stem cutting |
| 30. | Sami | <i>Prosopis cineraria</i> (L.) Druce | Fabaceae | Seed |
| 31. | Satawar | <i>Asparagus racemosus</i> Willd. | Liliaceae | Seed/Tuber |
| 32. | Star gooseberry, Shri amla | <i>Phyllanthus acidus</i> (L.) Skeels | Euphorbiaceae | Seed |
| 33. | Thuhar | <i>Euphorbia neriifolia</i> | Euphorbiaceae | Seed |
| 34. | Dhawai | <i>Woodfordia fruticosa</i> (L.) Kurz | Lythraceae | Stem cutting |
| 35. | Yellow Oleander | <i>Thevetia peruviana</i> (Pers.) K. Schum. | Apocynaceae | Seed/Stem cutting |

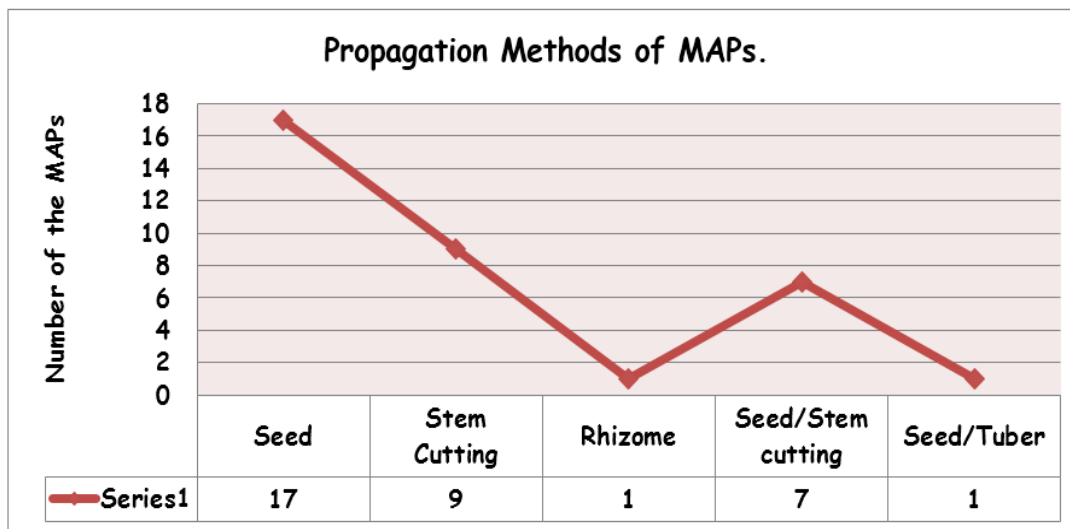
Table 2: Family wise distribution of MAPs.

| S. No. | Family | Total |
|--------|---------------|-------|
| 1. | Burseraceae | 1 |
| 2. | Verbenaceae | 1 |
| 3. | Malvaceae | 1 |
| 4. | Euphorbiaceae | 1 |

| | | |
|--------------|----------------|-----------|
| 5. | Acanthaceae | 1 |
| 6. | Annonaceae | 1 |
| 7. | Apocynaceae | 3 |
| 8. | Asclepiadaceae | 1 |
| 9. | Bixaceae | 1 |
| 10. | Combretaceae | 1 |
| 11. | Cornaceae | 1 |
| 12. | Euphorbiaceae | 1 |
| 13. | Fabaceae | 4 |
| 14. | Lauraceae | 1 |
| 15. | Liliaceae | 1 |
| 16. | Lythraceae | 2 |
| 17. | Malvaceae | 1 |
| 18. | Oleaceae | 2 |
| 19. | Pandanaceae | 1 |
| 20. | Punicaceae | 1 |
| 21. | Rubiaceae | 1 |
| 22. | Rutaceae | 3 |
| 23. | Smilacaceae | 1 |
| 24. | Sterculiaceae | 1 |
| 25. | Verbenaceae | 2 |
| TOTAL | | 35 |

Table 3: Propagation Methods of MAPs.

| S. No. | Mode of Propagation | Number of the MAPs |
|--------------|---------------------|--------------------|
| 1. | Seed | 17 |
| 2. | Stem Cutting | 09 |
| 3. | Rhizome | 01 |
| 4. | Seed/Stem cutting | 07 |
| 5. | Seed/Tuber | 01 |
| Total | | 35 |



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