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Study on Multiplication of Some Flowering Plants

KEYWORDS: Flowering plants, Multiplication, Vegetative parts,

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ABSTRACT *Due to varied climatic condition and adaption capability plants are showing a variety of diversity range. As per development of human civilization the use of the plants are multifolded in various purpose. Out of the large group of the plants some are marked as their use in religious purpose, ornamental values and Source of economic value etc.*

Day by day due to rapid industrialization, Urbanization etc. the plants population adversely affected. For existence in nature of the plants there are many modes of their multiplication is gifted by nature. Two methods sexual and vegetative methods are used by the plants for their multiplication but some of the plant species are of efficient to multiply by both the methods also. For the purpose of appearance in next season a huge amount of the seeds are produced by the plants seasonally or annually. In the case of failure in seed development in some plants are capable to multiply by their vegetative parts like Stem, Leaf or their modified forms etc.

The main objective of the present study was to assess the efficiency of the plants for their multiplication following by different methods. Soil filled in poly bags were utilized for above purpose of the study. There are 31 plant species belonging to 17 families were studied.

INTRODUCTION

Plant diversity includes the presence of a variety of plant species. It is due to the wide range of habitats and also remarked by plant diversity of the specified ecological area. According to many investigators like Mayer, 1988 India is a center of diversity in Plants. Seeds are the structure which developed after successful pollination and fertilization in the plants. It gives new chance to originate the plants in nature. Tatyana Batygina, 2005 noticed on sexual and asexual processes in productive systems of flowering plants.

Some plant parts by which it regenerates can be transferred by natural or artificial mode also. Mostly plant species multiplying by their seeds but the plants which are not success to form seeds are multiplied by their vegetative parts using their root, stem, leaf or their modified form. In vitro vegetative growth and flowering of olive tree in response to GA3 treatment was studied by Chaari et al, 2006. *Asculus indica* multiplication by their vegetative mode after hormonal treatment noticed by Majeed et. al. (2009).

Many investigators experimented on plant multiplication using plant shoot like Mulwa R. M. S., Bhalla P. L, 2000 recorded In vitro shoot multiplication of *Macadamia tetraphylla* L. Mistra P, Datta S. K. 2001 found direct differentiation of shoot buds in leaf segments of white marigold (*Tagetes erecta* L.). Stem cutting is a easy method for plant multiplication is noticed by Nanda and Kochhar (1987). Human interference acts as a reason for loss of the plant species as recorded by Arora, 1993.

Presences of varied characteristics of flowering plants are of great demand and also marked for significant valuation. A nodular part of the stem cutting originates new roots and buds for further growth of the plant. Batygina T. B., Bragina E. A., and Titova G. E., 1996 experimented on morphogenesis of propagules in viviparous species *Bryophyllum daigremontianum* and *B. calycinum*.

Modified form of the vegetative parts under favorable condition generating new buds and root also which in next stage grow like a parental plant. The degree of origination of new buds/roots from vegetative parts and development in to new individual is a varied process among the plant species. This process is also affected by the plant age and their environmental condition.

MATERIALS AND METHODS

Present study was done during 2012 -13 in the nursery of Rural Technology Department at G. G. V. (A Central University) - Bilaspur – (C.G.) India. Many poly bags (Five individually) were used for multiplication of various plants. As the plants are capable to multiply by varied parts so, Seeds, Stem cutting were used to observe their tendency and capability to grow in poly bags.

Above experiment was controlled by following management required for better growth of the plants like water, Nutrients, Weed removal and protection of the plants from various factors. Plant parts used for above purpose were collected based on their health, growing behavior and adaptability in the area.

RESULTS AND DISCUSSION

Table - 1 showing the findings of the present study. Table - 2 is for variation of Habits of the flowering plants. Multiplication plant parts given in Table - 3. Family wise distribution of the studied plants is given in Table - 4.

Among 17 families there are 31 species of plants were experimented. Plants were varied on their Habit such as Herb, Herb/Climber, Shrub and Trees. Mostly stem cutting of the plants (51.62 %), Seeds by 41.94 % and 3.32 % for bulb and Seed/Tuber were used for present experiment.

For herbaceous plants mostly stem cutting method is used for vegetative propagation but many of them are also capable to produce seeds. Maximum plants studied were belonging to the Family Apocynaceae (23 %) than the member of Asteraceae and Fabaceae were equally by 13 % were recorded individually. Six plant species were multiplied by their seed collection where as rest of the plants among 31 Species 25 plants were multiplied in poly bags separately.

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Table - 1. Some Flowering plants and their Multiplication.

S. No.	Botanical Name	Common Name	Family	Habit	Plant parts used for Mltiplication	Mode of Multiplication
1.	Acalypha wilkesian	Copper leaf	Euphorbiaceae	Herb	Stem cutting	Poly Bags
2.	Adenium obesum	Desert Rose	Apocynaceae	Herb	Stem cutting	Poly Bags
3.	Artemisia vulgaris	Mugwort,	Asteraceae	Herb	Seed	Poly Bags
4.	Asclepias curassavica	Blood Flower	Apocynaceae	Herb	Stem cutting	Poly Bags
5.	Barleria cristata	Philippine Violet	Acanthaceae	Herb	Seed	Poly Bags
6.	Bauhinia purpurea	Butterfly Tree	Fabaceae	Herb	Seed	Poly Bags
7.	Bougainvillia glabra	Paper Flower	Nyctaginaceae	Shrub	Stem cutting	Poly Bags
8.	Caesalpinia pulchirima	Peacock Flower	Fabaceae	Shrub	Seed	Seed collection
9.	Canna indica.	Baijanti	Zingiberaceae	Herb	Seed	Poly Bags
10.	Catharanthus roseus	Sadabahar	Apocynaceae	Herb	Seed	Seed collection
11.	Cestrum nocturnum	Night jasmine	Solanaceae	Herb	Stem cutting	Poly Bags
12.	Chrysanthemum indicum	Sewanti	Asteraceae	Herb	Stem cutting	Poly Bags
13.	Clitoria ternata	Aparajita	Fabaceae	Herb/ Climber	Seed	Seed collection
14.	Delonax regia	Gulmohar	Fabaceae	Tree	Seed	Seed collection
15.	Gloriosa superva	Kalihari	Liliaceae	Herb/ Climber	Seed/ Tuber	Poly Bags
16.	Hibiscus rosa sinenses	Gudhal	Malvaceae	Shrub	Seed	Poly Bags
17.	Ixora coccinea	Ixora	Rubiaceae	Herb	Stem cutting	Poly Bags
18.	Jasmium sambac	Mongra	Oleaceae	Herb	Stem cutting,	Poly Bags
19.	Mirabilis jalapa	Four o clock plant	Nyctaginaceae	Herb	Seed	Poly Bags
20.	Nerium indicum	Kaner	Apocynaceae	Herb	Seed	Poly Bags
21.	Nyctanthus arbortristis	Parijat	Nyctaginaceae	Shrub	Stem cutting	Poly Bags
22.	Passiflora	Passion Flower	Passifloriaceae	Herb/ Climber	Stem cutting	Poly Bags
23.	Plumaria glabra	Tample Tree	Apocynaceae	Tree	Stem cutting	Poly Bags
24.	Polyanthus tuberosa	Rajnigandha	Amaryllidaceae	Herb	Bulb	Poly Bags
25.	Portulica	Nine o' Clock Plant	Portulaceae	Herb	Stem cutting	Poly Bags
26.	Quisqualis indica Linn.	Rangoon ki Bel	Combrataceae	Shrub	Stem cutting	Poly Bags
27.	Rosa indica Linn.	Rose	Rosaceae	Herb	Stem Cutting	Poly Bags
28.	Tabernaemontana diverticata	Chandani	Apocynaceae	Shrub	Stem cutting	Poly Bags
29.	Tabernaemontana coronera	Chandani	Apocynaceae	Shrub	Stem cutting	Poly Bags
30.	Tagetes erecta	Marigold	Asteraceae	Herb	Seed	Seed Collection
31.	Tagetes patula	Marigold	Asteraceae	Herb	Seed	Seed Collection

Table – 2. Variation in Habits of the Plants.

S. No.	Habit	Number	Percentage
1.	Herb	19	61.29
2.	Herb/Climber	03	9.68
3.	Shrub	07	22.58
4.	Tree	02	6.45
Total		31	100.00

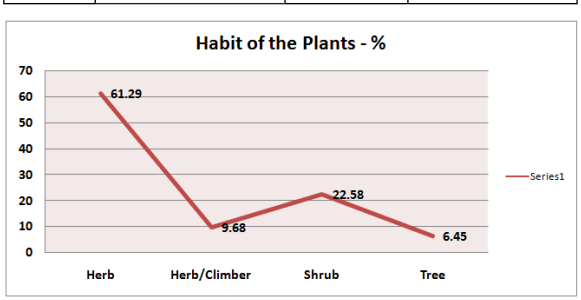


Table – 3. Different plant parts used for Multiplication of the Plants.

S. No.	Multiplication by	Number	Percentage
1.	Bulb	01	3.22
2.	Seed	13	41.94
3.	Stem cutting	16	51.62
4.	Seed/Tuber	01	3.22
Total		31	100

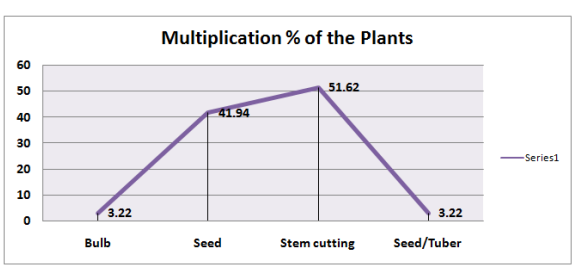
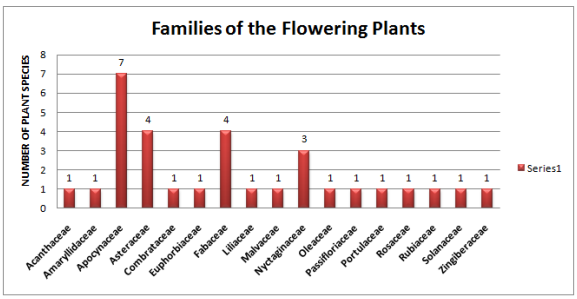


Table – 4. Flowering Plants According to their Family.

S. N.	Family	Number
1.	Acanthaceae	01
2.	Amaryllidaceae	01
3.	Apocynaceae	07
4.	Asteraceae	04
5.	Combrataceae	01
6.	Euphorbiaceae	01
7.	Fabaceae	04
8.	Liliaceae	01
9.	Malvaceae	01
10.	Nyctaginaceae	03
11.	Oleaceae	01
12.	Passifloriaceae	01
13.	Portulaceae	01
14.	Rosaceae	01
15.	Rubiaceae	01

16.	Solanaceae	01
17.	Zingiberaceae	01
TOTAL		31



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