

Ecological study of medicinal wild herbs in Mayur Garden at Bhopal City, Madhya Pradesh, India

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ABSTRACT

A field survey of wild herbs of Mayur Garden of Bhopal City was conducted during October 2008 to October 2009 to find out the presence of wild herbs in gardens of the Bhopal city. The study revealed that the gardens were infested with thirty eight wild herbs belonging to fourteen families. The most dominant families were Asteraceae and Poaceae. The most prominent wild herbs were Vernonia cinerea (Linn.) Less., Amaranthus viridis Linn., Oxalis corniculata Linn., Dichanthium annulatum Forsk., Echinochloa colonum (Linn.) Link in winter season. In rainy season Gomphrena celosioides Mart and in summer season Cyanadon dactylon (Linn.) Pers. Eclipta prostrata Linn. and Parthenium hysterophorus Linn. found in highest frequency percentage.

Key words: Wild herbs, garden, frequency.

INTRODUCTION

Wild herbs are generally found as unwanted plants which are available everywhere. Herbs have been used by people for longer than we have been keeping written record. Originally it is found in the wild. There is no effect of water availability and soil conditions on them. They are easily available and almost visible everywhere. They have medicinal value. These wild herbs would be great source of herbal medicines. Wild herbs occupy almost all open spaces and grow abundantly. Wild herbs are growing in all types of weather conditions but the rainy season is most productive for their growth.

Bhopal is the capital of Madhya Pradesh, situated on 23⁰-16' North latitude and 77⁰-25' East longitude. Climate of Bhopal is moderate and pleasant for the growth and development of all kind of plants. City has black cotton soil and laterite soil. No serious attempt was made to explore the uses of wild herbs of Bhopal region.

Some worker who has contributed in field of Medicinal Plants with special references to Madhya Pradesh is Oommachan (1977). Some other workers who have contributed in the field of ethanbotanical study by Tomar (2009). Study of Medicinal plants in M.P. was initiated by Jain (1963). He further carried out his investigation in various parts of Madhya Pradesh (1965). Oudhia, (1999) worked on Medicinal Weeds in Groundnut Fields of Chhastisgarh, Madhya Pradesh, India and the detailed ethno-botanical survey was conducted in the Chhastisgarh region. Ahmad et al., (2006) were conducted a study on Ethanomedicinal demography and ecological diversification of some important weeds from district Attock-Pakistan. Ahmad, (2007) worked on Medicinal wild plants from Lahore-Islamabad Motorway (M-2) and reported that wild plant gathering is an ancient tradition that has endured in many rural communities in Pakistan. Verma et al., (2007) worked on Medicinal plants in an urban environment the

medicinal flora of Banares Hindu University, Varanasi, and Uttar Pradesh. Dhole et al., (2009) worked on Ethanomedicinal Studies of Some Weeds in Crop Fields of Marathwada Region, India.

Very little ecological information exists on the Bhopal region. Such information is important to understand the ecology of the region. So it is necessary to work on ecological investigations as well as find out the medicinal value of wild herbs.

MATERIALS AND METHODS

The study area lays 23°-16' North latitude and 77°-25' East longitude. The climate of the area is moderate and pleasant. It provides a favorable atmosphere for the growth development of a variety of wild plants. Present study was conducted in ten selected sites of Mayur Garden at Bhopal city were conducted during winter season, rainy season and summer season during October 2008 to October 2009 .

For collecting Ethanomedicinal data, the following disciplines were used.

- I) Collecting and identifying the important wild herbs.
- II) Preparation of herbarium sheets and giving them voucher numbers.
- III) Find out frequency of these wild herbs.

Data regarding frequency of wild herbs were recorded by applying the following formulas. (Shukla and Chandel, 1991)

The Frequency of a plant species was determined with the help of the following formula:

$$\text{Frequency (\%)} = \frac{\text{Total no. of quadrat in which the species occur}}{\text{Total no. of quadrat studied}} \times 100$$

The following formula was used for calculating relative frequency of a plants species:

$$\text{Relative Frequency of a species (\%)} = \frac{\text{Frequency of a species}}{\text{Total frequency of all species}} \times 100$$

Plants species were collected, identified with the help of available floras and relevant literature of Grewal (2000), Prajapati and Kumar (2003), Bhattacharjee and De (2005), and Dhiman (2006). Their specific medicinal value were verified with the knowledge of local people and also confirming the details available in recent studies (Nazeruddin et al., 2011; Kshirsagar et al. 2011; Sindu et al., 2012; Omara -Achong et al., 2012; Singh and Kumar, 2013). The prepared herbarium sheets were submitted in Department of Botany, Safia Science College Bhopal.

RESULTS AND DISCUSSION

The survey revealed that total 38 wild herbs found in Mayur garden of Bhopal city in which 35 wild herbs possesses useful medicinal properties. The medicinal properties of these wild herbs have been found well documented in the available literature. (Table 1)

Vernonia cinerea (Linn.) Less. have highest frequency of 90% in winter season and Relative frequency of 7.4. *Amaranthus viridis* Linn. *Oxalis corniculata* Linn. *Dichanthium annulatum* Forsk. *Echinochloa colonum* (Linn.) Link with 80% frequency and 9.3% relative frequency was found to be the most frequently occurring wild herb followed by *Rungia pectinata* (Linn.) Nees with 60% frequency and 6.9 % Relative frequency. (Figure 1)

Table 1: Medicinal wild herbs of Mayur Garden of Bhopal City

Name of Wild Herb	Family	Remarks
<i>Ageratum conyzoides</i> Linn.	Asteraceae	M.V.
<i>Alternanthera sessilis</i> (Linn.)DC.	Amaranthaceae	M.V.
<i>Alysicarpus vaginalis</i> (Linn.) DC.	Papilionaceae	M.V.
<i>Amaranthus viridis</i> Linn.	Amaranthaceae	M.V.
<i>Bidens pilosa</i> Linn.	Asteraceae	M.V.
<i>Boerhavia diffusa</i> Linn.	Nyctaginaceae	M.V.
<i>Cassia tora</i> Linn.	Caesalpiniaceae	M.V.
<i>Chloris barbata</i> (Linn.) Sw.	Poaceae	M.V.
<i>Cyanadon dactylon</i> (Linn.) Pers.	Poaceae	M.V.
<i>Desmodium trifolium</i> (Linn.) DC.	Papilionaceae	M.V.
<i>Dichanthium annulatum</i> Forsk.	Poaceae	Fodder
<i>Echinochloa colonum</i> (Linn.) Link.	Poaceae	M.V.
<i>Eclipta prostrata</i> Linn.	Asteraceae	M.V.
<i>Eleusine indica</i> (Linn.)	Poaceae	M.V.
<i>Eragrostis tenella</i> (Linn.)P. Beauv.	Poaceae	Unknown
<i>Erigeron bonariensis</i> Linn.	Asteraceae	M.V.
<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	M.V.
<i>Euphorbia thymifolia</i> Linn.	Euphorbiaceae	M.V.
<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	M.V.
<i>Hyptis suaveolens</i> (Linn.) Poit.	Labiatae	M.V.
<i>Launaea procumbens</i> Roxb.	Asteraceae	M.V.
<i>Malvastrum coromandelianum</i> (Linn.)Garcke.	Malvaceae	M.V.
<i>Medicago polymorpha</i> Linn.	Papilionaceae	M.V.
<i>Oxalis corniculata</i> Linn.	Oxalidaceae	M.V.
<i>Parthenium hysterophorus</i> Linn.	Asteraceae	M.V.
<i>Phyllanthus niruri</i> Linn.	Euphorbiaceae	M.V.
<i>Portulaca oleracea</i> Linn.	Portulacaceae	M.V.
<i>Ruellia tuberosa</i> Linn.	Acanthaceae	M.V.
<i>Rungia pectinata</i> (Linn.) Nees	Acanthaceae	M.V.
<i>Setaria glauca</i> (Linn.) P.Beauv.	Poaceae	Unknown
<i>Sonchus arvensis</i> Linn.	Asteraceae	M.V.
<i>Sonchus asper</i> (Linn.) Hill	Asteraceae	M.V.
<i>Sonchus oleraceus</i> Linn.	Asteraceae	M.V.
<i>Synedrella nodiflora</i> (Linn.) Gaertn.	Asteraceae	M.V.
<i>Trianthema portulacastrum</i> Linn.	Aizoaceae	M.V.
<i>Tridax procumbens</i> Linn.	Asteraceae	M.V.
<i>Vernonia cinerea</i> (Linn.) Less.	Asteraceae	M.V.
<i>Veronica anagallis-aquatica</i> Linn.	Scrophulariaceae	M.V.

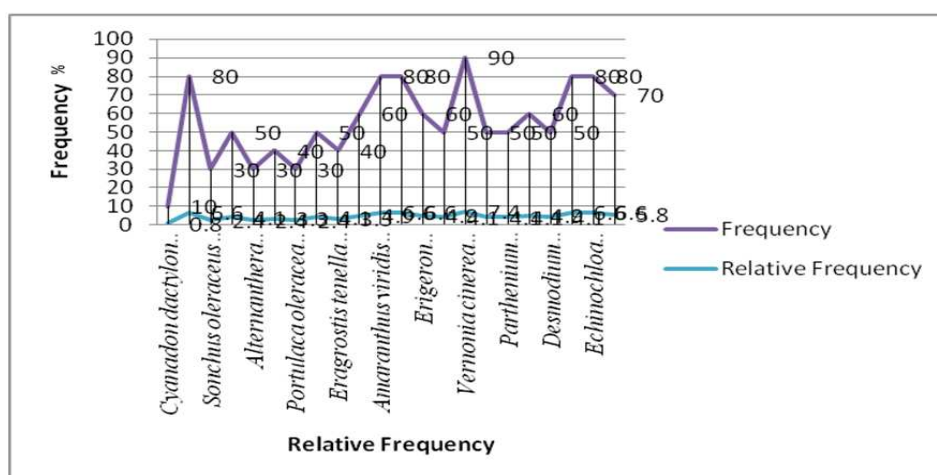


Figure 1: Frequency of Wild herbs in Mayur Garden Bhopal (Winter Season)

In rainy season *Gomphrena celosioides* Mart were found in 60% prevalence and with 60% frequency and 8.4 % relative frequency was found to be the most frequently occurring wild herb followed by *Sonchus arvensis* Linn. with 50% frequency and 7 Relative frequency.(Figure 2)

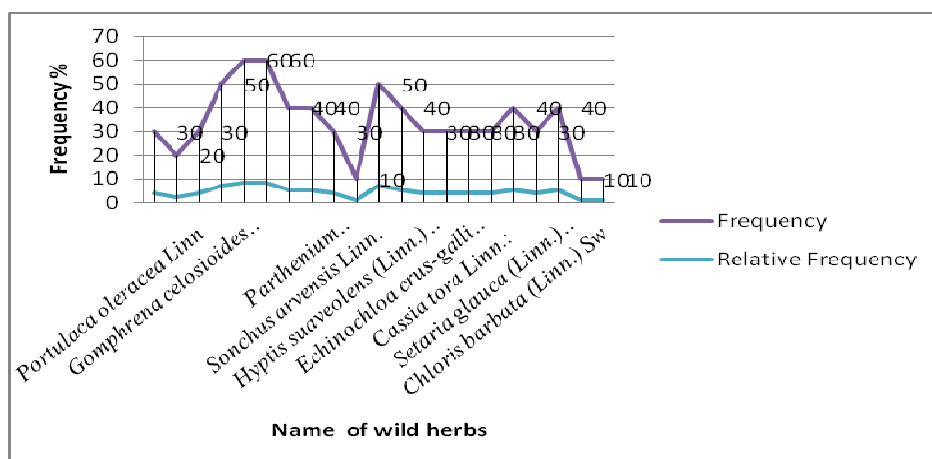


Figure 2: Frequency of Wild herbs in Mayur Garden Bhopal (Rainy Season)

In summer season *Alternanthera sessilis* (Linn.)DC.. with 80% frequency and 20.5 relative frequency was found to be the most frequently occurring wild herb followed by *Cyanadon dactylon* (Linn.) Pers. *Eclipta prostrata* Linn. and *Parthenium hysterophorus* Linn. with 50% frequency and 12.8 % Relative frequency.(Figure 3)

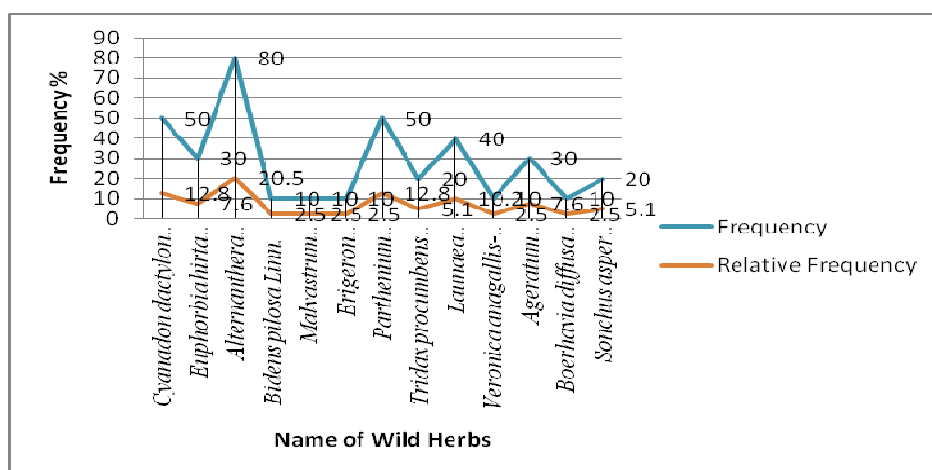


Figure 3: Frequency of Wild herbs in Mayur Garden Bhopal (Summer Season)

Wild herbs have medicinal value. Further study of these wild herb especially phytochemical and pharmacological studies may contribute to development of important pharmaceutical products for future.

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