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Review Article

### GUIDELINES FOR COLLECTION OF RAW DRUGS AND CHARACTERISTICS OF COLLECTED MATERIAL W.S.R. TO AYURVEDA

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#### ABSTRACT

Medicinal plant materials should be collected from the appropriate place, and during the appropriate season or time period to ensure the best possible quality of both source materials and finished products. It is well known that the quantitative concentration of biologically active constituent's i.e. veerya of a drug, varies with the stage of plant growth, its stage of development and place of its occurrence. The best time for collection should be determined according to the quality and quantity of biologically active constituents rather than the total vegetative yield of the targeted medicinal plant parts.

**Charaka** prescribes certain instructions regarding mode of collection. They include performance of auspicious rituals and practices, taking of sacred bath, wearing sacred dress, worshipping of gods, ashwinidevata's and the sacred cow, performance of religious fast etc.

**Keywords:** Veerya, Biological Active Constituents, Collection, Ayurveda, Guideline.

#### INTRODUCTION

The seer's of *Ayurveda* advised following guideline regarding collection of raw drugs and characteristics of collected material, which are necessary to follow for the manufacture of a quality medicine. While collecting the plants physician has to face towards either northern or eastern direction<sup>1</sup>.

Even if we ignore the effect of any supreme powers in bestowing powers to the plants the set of instructions gives an idea about environmental concern that our ancients have shown in protecting natural flora of the mother earth. This concern is of extreme importance to present day society that has been over exploiting the drugs for commercial gains without much reciprocal social gains as a result of which many of the medicinal plants commonly used by Ayurveda specialists is at the verge of extinction.

##### IDEAL SOIL FOR THE HERBS:

The soil which is unctuous, smooth, blackish-white or reddish in color, nearer to water sources, tight (non fragile), devoid of big stones, ditch, excessive water, gravels, sand particles, *valmika* (ant hills) is recommended best for finding quality herb and for the collection of raw materials<sup>2</sup>.

##### CHARACTERISTICS OF COLLECTED MATERIAL:

The herbs that have to be collected for medicinal purposes should have the following characteristics –

- It should not be affected by smoke, rain, air or water<sup>3</sup>.
- It should be collected in respective seasons, from *prasastabhumi* which should be free from pests, poisonous weapon, severe sunlight, high breeze, fire, excessive moisture and any kind of disease<sup>4</sup>.
- It should not be collected from road sides, should be well developed and deeply rooted in the soil, must have a single predominant taste in it with its natural odor, color and taste.
- It should be new and must be used within one year of its collection from field and must be collected from eastern and northern side for therapeutic utility<sup>5</sup>.

##### METHOD OF COLLECTION OF RAW DRUGS:

The person who is going to collect raw material for manufacture of medicine for well-being of human kind should follow the ritual procedure. He must be neat and clean both physically and mentally, should wear white dress, should perform prayer prior to collection, must be fasting overnight, the useful parts shall be collected either from the east or north

side. According to *Ayurveda* the raw material to be used shall be collected according to part-used, season of collection and its potency, in a specific manner<sup>6</sup>.

#### TIME OF COLLECTION ACCORDING TO PART USED:

**Table 1: Season of collection and part to be collected according to Charaka:<sup>7</sup>**

Part-used	Season
Tender leaves & branches	Autumn & spring
Roots	Summer & late winter
Bark, latex & tuber	Late autumn
Heart wood & sap-wood	Early winter
Flowers & fruits	According to their season

**Table 2: Season of collection and part to be collected according to Sushrut:<sup>8</sup>**

Sl. No.	Part-used	Season
1	Roots	Between summer & rainy season
2	Leaves	Rainy –season
3	Barks	Late- autumn
4	Latex	Early winter
5	Heart-wood	Spring
6	Fruits	Summer

**Table 3: Season of collection and part to be collected according to Raj- Nighantu:<sup>9</sup>**

Sl. No.	Part-used	Season
1	Tubers & rhizomes	Early – winter
2	Roots & leaves	Late- winter
3	Flowers & fruits	Spring
4	Tender-leaves	Summer
5	Whole- plant	Late- autumn

**Table 4: Collection of raw-drug material according to season:**

Sl. No.	Part-used	Charakkalpa	Sushruta sutra	Raja Nighantu
1	Roots	<i>Greesma, sisira</i>	<i>Pravrit</i>	<i>Sisira</i>
2	Tender-leaves	<i>Varsa, vasant</i>	-	<i>Greeshma</i>
3	Branches	<i>Varsha, vasant</i>	-	-
4	Flowers	As per <i>ritu</i>	-	<i>Vasant</i>
5	Bark	<i>Sarad-ritu</i>	<i>Sarad-ritu</i>	-
6	Latex	<i>Sarad-ritu</i>	<i>Hemanta</i>	-
7	Sap-wood	<i>Hemanta</i>	<i>Vasant</i>	-
8	Fruits	As per <i>ritu</i>	<i>Greesma</i>	<i>Vasant</i>
9	Tubers/rhizomes	<i>Sarad-ritu</i>	-	<i>Hemanta</i>
10	Leaves	-	<i>Varsha</i>	<i>Sisira</i>
11	Whole-plant	-	-	<i>Sarad-ritu</i>

#### TIME OF COLLECTION ACCORDING TO VEERYA (POTENCY) :

**Sushruta** while contradicting the view of others regarding collection of raw drug materials as per the season and part used, proposed collection as per the *veerya* or potency of that material according to him-

1. *Seetaveeryadravya* (*Soumyaoushadha*) should be collected in *soumya-ritu* (cold season) i.e. in *varsha, hemanta & sisira-ritu*.
2. *Ushnaveeryadravya* (*agneyaoushadha*) should be collected in *agneya-ritu* (hot season) i.e. in *sarad, varsha & grishma-ritu*<sup>10</sup>.

#### COLLECTION OF DRUGS AS PER DESHA (AREA) :

**Sharangdhara** advocates collection of *agneyadravas* (*Ushnaveeryadravya*) from *vindhya* region and *Soumyaoushadha* (*Seetaveeryadravya*) from Himalayan region<sup>11</sup>.

#### COLLECTION OF DRUGS ACCORDING TO BHUMI / SOIL :

**Sushruta** described the significance of *bhumi/* soil, while collecting the drugs for different therapeutic purposes as-

1. **Veerachandrava/** purgatives should be collected from soil rich in *prithvi* and *jalmahabhuta*.

2. *Vamandrava*/ emetics should be collected from soil rich in *agni, vayu & akashmahabhuta*.
3. *Ubhayabhag-haradravya/ dravya* having both purgative & emetics property must be collected from soil rich in all the five mix *mahabhuta*.
4. *Samanyadravya*/palliative drugs should be collected from soil rich in *akashmahabhuta*<sup>12</sup>.

#### Collection of raw material according to pharmacological properties:

*Sarangdhara* explained the relationship between the collection of raw drugs in a specific season and for specific therapeutic effect depending upon their respective pharmacological properties<sup>13</sup>.

**Table 5: Season for collection of raw material according to pharmacological properties**

Sl. No.	Pharmacological-property	Season
1	<i>Veerachan</i> /purgation	<i>Vasanta-ritu</i>
2	<i>Vaman</i> /emesis	<i>Vasanta-ritu</i>
3	For all other purposes	<i>Sarad-ritu</i>

#### MODERN VIEW REGARDING COLLECTION OF RAW DRUG MATERIAL:

Only ecologically non - destructive system of collection should be employed. These will vary widely from species to species. For example – while collecting roots of trees and bushes, the main roots should not be cut or dug up, and severing the tap root of trees and bushes should be avoided. Only some of the lateral roots should be located and collected. When collecting species whose bark is the main material to be used, the tree should not be girdled or completely stripped of its bark, it will result into death of that plant. So longitudinal strips of stem bark along one side of the tree should be cut and collected.

In the course of collection, efforts should be made to remove parts of the plants that are not required and foreign material, in particular toxic weeds. Decomposed medicinal plant materials should be discarded.

Medicinal plants should not be collected in or near areas where high levels of pesticides, herbicides, insecticides, chemical fertilizer or other possible contaminants are used or found, such as road –sides, drainage ditches, mine tailing, garbage dumps and industrial surroundings which may produce toxic emissions. In addition, the collection of medicinal plants in and around active pastures, including riverbanks downstream from pastures, should be avoided in order to avoid microbial contamination from animal waste.

In general, the collected raw medicinal plant materials should not come into direct contact with the soil. If underground parts are used, any adhering soil should be removed from the plants as soon as they are collected. Collected material should be placed in clean basket, mesh bags, other well aerated containers or drop clothes that are free from foreign matter, including plant remnants from previous collecting activities.<sup>14</sup>

#### COLLECTION PERIOD:

The best period for collection of herbaceous species is during September -November, but in August-October in the area above 3000m., as, snowfall starts from November. In evergreen forest the best period for collection of trees and shrubs is March-May, as most of the species are in flowering condition during this period, while in deciduous forest the collection should be avoided in winter season because falling of leaves is common during this season.

#### ROOTS:

Roots of annuals are usually not collected but in case where the whole plant is used, the roots of an annual plant along with aerial part of the plant are collected. The biennials and perennials are generally collected in autumn of the first year growth or in spring before the beginning of the second year growth. This is because the roots are storage organ for the plant and accumulate active principles during the summer. However, there are some exceptions also viz. the root of *withania somnifera* are normally collected when the plants are 6-8 months old. Likewise the roots of *Saussurealappa*, *Innularacemosa*, *Glycirrhizia glabra* should be collected when the plants are of 3-5 years old.

#### LEAVES:

They are collected throughout the whole growing period. Young leaves, however, contain highest quality of active principle, but they must be free from diseases, insect etc.

#### TUBERS/BULB:

These should be collected during flowering period because this aid in identification of the species. It is notable that the deep digging is avoided during the collection of underground parts.

#### HERBAGE:

The aerial or top parts of the plant are collected with flower or fruit bearing stem. In case of herbage, seasonal studies must be conducted to pinpoint the period when optimum active principles are present in the plant. The care should be taken during the collection that the mature branches of the stem must be harvested and never remove all the branches of the plant.

#### FLOWER:

Flowers or whole inflorescences are gathered at the start of the flowering period and leave some floral parts on the plants to facilitate natural regeneration.

#### FRUITS AND THE SEEDS:

Fruits and the seeds are collected when they are fully matured. In the case of cultivated crops which are harvested by machine, this is done just before they are fully ripe so that fruits do not crumble or the seeds fallout in the field.

#### BARK:

It is collected either in spring when the trees and shrubs begin to bud or in autumn after they have shed their leaves. This is

the time of year when the flow of sap is at its maximum and bark radially detach from the wood. However, the collection time of every individual plant or part of the plant differs depending upon the climate and altitude. The bark should be collected from the branches instead of main trunk and do not peel whole bark of the plant. It is also important to strip the bark longitudinally and not all over the circumference to the trunk/ branches.

#### SEASON OF COLLECTION:

The season and time at which each drug is collected is usually a matter of consideration, since the amount and sometimes nature of active constituents varies throughout the year. There are increasing evidence that composition of number of secondary plant metabolites varies appreciably throughout day and night e.g., Rhubarb (*Rheum emodi*) has maximum Anthraquinone in summer season which is an active constituents of this plant while same constituent is minimum or absent if one collect the drug in winter. Likewise, the amount of glycoside present in the leaves of *Digitalis purpurea* remains at its highest level only in the day time, it breaks down in the night. So, the leaves of digitalis should be collected in the day time and rhubarb should be collected in summer for desired action.

#### STAGE OF PLANT:

It is also observed that the quality and quantity of chemical constituents varies according to stage/growth of plant. Therefore, it is very essential to know the optimum stage of the plant parts/plant for collection of right material for getting best therapeutic effects. It is generally suggested to collect the leaves just before flowering, flowers when fully opened, and rhizome and root when aerial parts are matured.

#### GENERAL GUIDELINES FOR TIME OF COLLECTION:

1. Leaves, flowers and fruits should not be collected when covered with dew or rain.
2. Leafy drugs which are discolored or attacked by insects or slug should be rejected.
3. Bark is usually collected after a period of damp weather.
4. Collection of gums, gum resins etc. should be made in dry weather.
5. Care should be taken to exclude vegetable debris as far as possible.
6. Underground parts must be freed from soil.

### CONCLUSION

For our acharyas, medicinal plants were not just resources for exploitation for fulfilling man's need/greed. They were the auspicious fellow inhabitants of the sacred planet which is being exploited only for an unavoidable reason to protect and promote the health of living being. In fact they believed that the drug will be blessed with optimum medicinal value if and only if their purpose is genuine and they properly collect the plants with due respect. This concern is of extreme importance to present day society that has been over exploiting the drugs for commercial gains without much reciprocal social gains as

a result of which many of the medicinal plants commonly used by Ayurveda specialists is at the verge of extinction.

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