



FORMULATION AND EVALUATION OF POLYHERBAL SYRUP CONTAINING ASPARAGUS RACEMOSUS (SHATAVARI) AND CONVULVULUS PLURICAULIS (SHANKHPUSHPI) FOR DEPRESSION MANAGEMENT

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ABSTRACT

Depression is a widely observed mental health condition that affects emotional stability, thinking ability, and daily activities of an individual. In recent years, herbal medicines have been considered as a better alternative to synthetic drugs because of their fewer side effects and good patient acceptability. Asparagus racemosus (Shatavari) and Convolvulus pluricaulis (Shankhpushpi) are well known traditional medicinal plants which have been reported to possess antidepressant and calming effects on the nervous system. The present work was carried out to formulate and evaluate a herbal syrup containing extracts of Asparagus racemosus and Convolvulus pluricaulis for the management of depression. The extracts were prepared using simple extraction methods such as decoction or maceration. These extracts were then mixed with a suitable syrup base along with required excipients like sucrose, sodium

benzoate, and flavoring agents. The prepared formulation was evaluated for different parameters such as pH, viscosity, appearance, and stability. The results obtained showed that the syrup was stable and had acceptable characteristics. Hence, it can be suggested that the prepared herbal syrup may be useful in the supportive management of depression.

KEYWORDS: Asparagus racemosus, Convolvulus pluricaulis, herbal syrup, depression, antidepressant activity.

1. INTRODUCTION

Depression is a mental health condition in which a person experiences persistent sadness, low mood, and loss of interest in daily activities due to disturbances in emotional and psychological balance. This condition can vary in severity from mild to severe and may affect thoughts, behavior, and overall functioning. It may develop gradually or suddenly and can interfere with personal, social, and academic life. The condition is usually associated with an imbalance of neurotransmitters such as serotonin, dopamine, and norepinephrine in the brain. If not managed properly, depression may lead to serious emotional and physical health problems.

Depression is a common mental disorder and affects people of different ages, but it is more frequent in adolescents and adults. Factors such as stressful life events, genetic predisposition, chronic illness, lack of social support, and substance abuse can increase the risk of depression.

Common types of depression include: Major depressive disorder (most common), Persistent depressive disorder, Bipolar disorder, Seasonal affective disorder.

1.1 *Asparagus racemosus*

Asparagus racemosus is a medicinal plant from the family Asparagaceae. It is found in many parts of India, mainly in tropical and subtropical regions. The plant is a climbing shrub and its roots are mostly used for medicinal purposes. It has been used in traditional medicine for a long time because of its beneficial effects on health.

The roots contain important compounds like saponins and alkaloids which help in its therapeutic action. It is commonly used to reduce stress, improve strength, and support overall health. Because of its antioxidant and adaptogenic properties, it is also used in herbal preparations such as syrups and extracts for managing depression and related conditions.

1.2 *Convolvulus pluricaulis*

Convolvulus pluricaulis is a small medicinal herb belonging to the family Convolvulaceae. It grows in different parts of India and is widely used in traditional medicine. The whole plant is used for its medicinal value, especially in brain-related conditions.

It contains natural compounds like alkaloids and flavonoids that are helpful for its action. It is mainly used to reduce anxiety, improve memory, and promote calmness. Due to its calming

and neuroprotective properties, it is commonly used in herbal formulations like syrups and extracts for the management of depression and mental health problems.

1.3 Ethanopharmacological Use

Asparagus racemosus and *Convolvulus pluricaulis* have been used in traditional medicine for many years due to their beneficial effects on health. *Asparagus racemosus* is commonly used to improve strength, reduce stress, and support the immune system. It is also helpful in conditions like inflammation, weakness, and hormonal imbalance. On the other hand, *Convolvulus pluricaulis* is mainly used for brain-related functions such as improving memory, reducing anxiety, and promoting calmness. It is also useful in managing stress and sleep-related problems.

Both plants contain important phytochemical constituents. *Asparagus racemosus* contains saponins, alkaloids, flavonoids, and glycosides, while *Convolvulus pluricaulis* contains alkaloids, flavonoids, and other active compounds. These components are responsible for their antioxidant, neuroprotective, and calming properties. Because of these properties, both plants are widely used in herbal preparations for the management of depression and related disorders.

Asparagus racemosus is commonly found in tropical and subtropical regions, while *Convolvulus pluricaulis* grows in different parts of India, especially in dry and open areas.

Kingdom: Plantae

Order: Asparagales / Solanales

Genus: Asparagus / Convolvulus

2. MATERIALS AND METHODS

2.1 Experimental Requirements

Asparagus racemosus and *Convolvulus pluricaulis* powder were obtained from Marotiya Bazar, Indore. Sucrose, sodium benzoate, and distilled water were used as chemicals.

2.2 List of Equipment

Ostwald viscometer, sieve, pH meter, mixer grinder, and heating mantle were used.

2.3 Preparation of Formulation

Extraction (Decoction Method):

The powder was taken and boiled with distilled water. After boiling, it was cooled and filtered to get a clear extract.



Fig. 1: Dry Powder of *Asparagus racemosus*.



Fig. 2: Dry Powder of *Convolvulus pluricaulis*



Fig. 3: Decotion method.



Fig. 4: Solubility of extract.

c) Formulation of Syrup

The sugar foundation was made by boiling together 45 grammes of water and 45 grammes of sucrose. Distilled water was added to bring the total volume to 100 ml after the liquid was filtered. The preservatives were mixed into a sugar solution after being dissolved in a little amount of water that had been cooked and cooled. Glycerin and sorbitol were added to a solution of *Madhuca longifolia* extract powder soaked in propylene glycol at 45-50°C. All of the remaining sweeteners were added and blended together. If the pH is too high (above 6.5), use citric acid to lower it to 5.5. The remaining 25 ml were then reconstituted with cooled, boiling water.

Table No. 1: Formulation of Convolvulus pluricaulis Asparagus racemosus Herbal syrup.

Material	F1	F2	F3
Asparagus racemosus Extract	20ml	20ml	20ml
Convolvulus pluricaulis Extract	20ml	20ml	20ml
Sodium Benzoate	0.2	0.2	0.2
Sucrose	40gm	40gm	40gm

2.4 Evaluation Parameters of Herbal Syrup

2.4.1 Organoleptic Property

Prepared syrup of Asparagus racemosus and Convolvulus pluricaulis was observed for its colour, appearance, odour and taste. The syrup was light brown in colour, clear in appearance, having characteristic odour and sweet taste.

2.4.2 Flavonoids Test

1 ml of the herbal extract was taken in a test tube and 2 ml of 1% sodium hydroxide solution was added. Formation of yellow colour indicated the presence of flavonoids.

2.4.3 Determination of pH

The pH of the prepared syrup was determined using a digital pH meter. The readings were taken three times and average value was noted.

2.4.4 Solubility

The prepared syrup was checked for its miscibility with water. It was found to be completely miscible without any separation.

2.4.5 Determination of Density

Density of the syrup was determined using a specific gravity bottle. The bottle was cleaned, dried and weighed. Then it was filled with syrup and weighed again to calculate density.

2.4.6 Viscosity

Viscosity of the syrup was determined using an Ostwald viscometer. The instrument was cleaned properly before use and flow time of the syrup was recorded.

2.4.7 Stability Study

The prepared syrup was stored at $40 \pm 2^\circ\text{C}$ and $75 \pm 5\%$ RH. The samples were checked at different intervals (0, 7, 14 and 21 days) for changes in colour, odour and taste. No significant changes were observed.

RESULTS AND DISCUSSION

Evaluation parameters

Table No. 2: Organoleptic characteristics features of syrup.

Features	F1	F2	F3
Colour	Light Brown	Light Brown	Light Brown
Odor	Characteristics	Characteristics	Characteristics
Taste	Sweet	Sweet	Sweet



Fig.No.5: Estimation of Ph.



Fig.No.6: Determination of viscosity.



Fig.No.7: Determination of density.



Fig. No.8: Solubility test.

Table No. 3: Estimation of pH, solubility, Density & Viscosity.

Features	F1	F2	F3
Ph	5.8	5.9	5.7
Solubility	Soluble in methanol and water	Soluble in methanol and water	Soluble in methanol and water
Density	0.82g	0.84g	0.79g
Viscosity	3.64cp	3.62cp	3.66cp

SUMMARY

Depression is a common mental health disorder that affects mood, thoughts, and daily functioning. Symptoms may include persistent sadness, loss of interest, fatigue, anxiety, and sleep disturbances. Its causes can be linked to genetic, biological, psychological, and environmental factors.

Herbal medicines like *Asparagus racemosus* and *Convolvulus pluricaulis* are used to support mental health. They contain bioactive compounds that may help reduce stress, improve mood, enhance cognitive function, and restore emotional balance.

Management includes lifestyle changes, counseling, and supportive herbal formulations to promote mental well-being naturally.

Asparagus racemosus

Asparagus racemosus is a medicinal plant whose roots are used in traditional medicine. It contains saponins, flavonoids, and alkaloids that provide adaptogenic, antioxidant, anti-inflammatory, and neuroprotective effects. In depression, it may help improve mood, reduce stress, and support mental well-being.

Convolvulus pluricaulis

Convolvulus pluricaulis is a medicinal herb used for its calming, antioxidant, and neuroprotective activities. Its extracts may help reduce anxiety, improve cognitive function, and support emotional balance, making it useful in herbal syrups for mental health.

CONCLUSION

Depression is a common mental health disorder that can affect mood, behavior, and overall well-being. If not managed properly, it may lead to emotional and physical complications. Herbal medicines have an important role in supporting mental health. *Asparagus racemosus* and *Convolvulus pluricaulis* possess various pharmacological properties, including

adaptogenic, neuroprotective, antioxidant, and calming effects, which may help in alleviating symptoms of depression and promoting mental balance. Therefore, the use of *Asparagus racemosus* and *Convolvulus pluricaulis* in herbal formulations like syrups can be considered a safe, natural, and beneficial approach for supporting mental health and managing depression.

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