

# Herbal Plants Showing Antidepressants Activity

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**Abstract:** Depression is a heterogenous mood disorder that has been classified and treated in variety of ways. Although a number of synthetic drugs are being used as standard treatment for clinically depressed patient, they have adverse effects that can compromise the therapeutic treatment. Thus, it is worthwhile to look for antidepressant from plants with proven advantage and favorable benefit to risk ratio. A number of medicinal plants and medicine derived from these plants have shown antidepressant properties by virtue of combined effect of their medicinal constituents. The causes of depression are decreased brain levels of monoamines like noradrenaline, dopamine and serotonin. Therefore, drugs restoring the reduced levels of these monoamines in the brain either by inhibiting monoamine oxidase or by inhibiting reuptake of these neurotransmitters might be fruitful in the treatment of depression. The present review is focused on the medicinal plants and plants based formulations having antidepressant activity in animal studies and in humans.

**Keywords:** Medicinal Plants, antidepressants, bioactive, Anxiolytic, Glycyrrhiza, Clitoria ternata, asparagus recemosus linn

## 1. Introduction <sup>[1]</sup>

- According to world health report, about 450 million people suffer from a mental or behavioral disorder.
- By the year 2020, depression is expected to constitute the second largest source of global burden of disease after heart disease.
- Depression is whole body illness which involves not only mood or emotion but also the physical body and thought process. The symptoms of depression are intense feelings of sadness, hopelessness, and despair, as well as the inability to experience pleasure in usual activities, changes in sleep patterns and appetite, loss of energy, and suicidal thoughts. There are two types of mental depression, namely unipolar depression, in which mood swings are always in the same direction and is common (about 75% of cases) non familial, clearly associated with stressful life events and accompanied by symptoms of anxiety and agitation. The second type is bipolar depression (about 25% of cases) sometimes also called as endogenous depression, shows a familiar pattern, unrelated to external stresses and usually appears in early adult life, results in oscillating depression and mania over a period of a few weeks.
- Patients with depression have symptoms that reflect decrease in brain monoamine neurotransmitters, specifically norepinephrine, serotonin and dopamine. 500, 000/year is diagnosed as suffering from depression. Although a number of synthetic drugs are being used as the standard treatment for clinically depressed patients, they have adverse effects that can compromise the therapeutic treatment, these common adverse effect include dry mouth, fatigue, gastrointestinal or respiratory problems, anxiety, agitation, drowsiness, and cardiac arrhythmias. Several drug - drug interactions can also occur. These conditions create an opportunity for alternative treatment of depression by used of medicinal plant

### Medicinal plants as anti - depressants.

The plants proved to possess antidepressant property are:

#### Glycyrrhizauralensis:

Many flavonoids extracted from nature plants have been reported to exert antidepressant - like effect in animal studies. The present study was designed to observe the effects of liquiritin, a flavones compound derived from Glycyrrhizauralensis, on the behaviors of chronic variable stress induced depression model rats and to explore the possible association between its antidepressant - like effect and antioxidative activity by measuring erythrocyte superoxide dismutase (SOD) activity and plasma malondialdehyde (MDA) level of the experimental animals



Image 1: Glycyrrhizauralensis

#### Rosmarinus Officinalis L:

Rosemary, Rosmarinus officinalis L. (Labiatae) has several therapeutic applications in folk medicine in curing or managing a wide range of diseases, including depression. In

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this study, the effect of the hydroalcoholic extract of the stems and leaves of this plant was investigated in two behavioral models, the forced swimming test (FST) and tail suspension test (TST) in mice. The results suggest that the antidepressant action of the extract of *R. officinalis* is mediated by an interaction with the monoaminergic system and that this plant should be further investigated as an alternative therapeutic approach for the treatment of depression



**Image 3:** Rosmarinus officinalis L.

#### **Piper Tuberculatum:**

In the present work, we studied the effects of piperine (PIP), an amide alkaloid isolated from the roots of *Piper tuberculatum* (Piperaceae), in the elevated plus maze, open field, rota rod, pentylenetetrazole (PTZ) - induced seizures, and forced swimming tests, in mice (Swiss, male, 25 g) to assess Anxiolytic, sedative, muscle relaxant, anticonvulsant and antidepressant effects, respectively. Furthermore, a significant and dose-dependent decrease in the immobility time, as evaluated by the forced swimming test, was observed after PIP administration (41% and 75% decrease, at the doses of 50 and 100 mg/kg, respectively), suggesting an antidepressant effect, similarly to that observed with imipramine, a classical antidepressant drug used as standard. In conclusion, we showed that PIP presents significant Anxiolytic and antidepressant activities, making this drug potentially useful in anxiety and depression



**Image 3:** Piper tuberculatum

#### **Clitoria ternatea**

The present investigation was aimed at determining the spectrum of activity of the ethanolic extract of *Clitoria ternatea* (CT) on the CNS. The CT was studied for its effect on cognitive behavior, anxiety, depression, stress and convulsions induced by pentylenetetrazole (PTZ) and maximum electroshock (MES). In conclusion, the extract was found to possess Nootropic, Anxiolytic, antidepressant, anticonvulsant and anti - stress activity. Further studies are necessary to isolate the active principle responsible for the activities and to understand its mode of action.



**Image 4:** Clitoria ternatea

#### **Asparagus racemosus Linn:**

*Asparagus racemosus* Linn. (AR) is an Ayurvedic rasayana used as an adaptogen. Adaptogenic drugs are those which are useful as anti - stress agents by promoting non - specific resistance of the body. Hence, the present investigation

evaluates the antidepressant effect of methanolic extract of roots of AR (MAR) standardized to saponins (62.2% w/w). Rats were given MAR in the doses of 100, 200 and 400 mg/kg daily for 7 days and then subjected to forced swim test (FST) and learned helplessness test (LH). The results show that MAR decreases immobility in FST and increases avoidance response in LH indicating antidepressant activity. MAR also reversed changes to the endogenous antioxidant system induced by FST. Thus, MAR has significant antidepressant activity and this effect is probably mediated through the serotonergic and the noradrenergic systems and augmentation of antioxidant defenses.



**Image 5:** *Asparagus recemosus* Linn

#### **Emblia Officinalis:**

Depression is a widespread psychiatric disorder affecting around 5% of the population. Furthermore, it is difficult to predict which patient will respond to any given treatment. In the traditional systems of medicine, many plants and formulations have been used to treat depression for thousands of years. The present study was undertaken to evaluate the antidepressant potential of acute and chronic administration of EO in forced swim test (FST) and tail suspension test (TST). The antidepressant activity of EO was comparable to that of standard drug imipramine. The results of the present study indicate the potential for use of EO as an adjuvant in the treatment of depression



**Image 6:** *Embliaofficinalis*

## 2. Conclusion

The collection of herbal plants showing the antidepressant activity were tabulated from the various journals and were reported above as we can conclude that herbal plants are very rich source of substance which are responsible of increasing the antidepressant activity

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