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Depression and medicinal plants: A revised and updated guide

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Abstract
A lot of data has been collected due to the fact that many individuals have been curious about drugs for a long time. Numerous effective methods for guaranteeing access to healthcare for everyone have recently emerged. Eighty percent of people in developing nations benefit from the health benefits of plants, according to data from the World Health Organisation (WHO). Using medicinal plants was an integral part of traditional medicine's development and implementation. Feeling down and unmotivated is a hallmark of depression. Physical well-being, mental clarity, emotional stability, and behavioural patterns may all be altered. Feelings of sadness, anxiety, disorientation, helplessness, remorse, annoyance, or restlessness are common in depressed people.

Keywords: Depression, sad, affect, disorder, mood, condition

Introduction
Sadness and a lack of motivation are symptoms of depression. The way a person thinks, acts, feels, and even their physical health may be impacted. Sadness, anxiety, emptiness, loss of direction, helplessness, worthlessness, guilt, irritation, and restlessness are some of the symptoms of depression. They may no longer take pleasure in activities that used to bring them delight, have a loss of appetite or excessive eating, problems concentrating, remembering details, or making decisions, and even suicidal thoughts or attempts. Sleeplessness, excessive sleeping, lethargy, lack of energy, persistent aches and pains, or gastrointestinal issues are all possibilities. A mental disease may not always be the cause of persistent sadness. Depression is a common reaction to some life experiences, a symptom of certain diseases, and a side effect of certain medical treatments. In addition, certain mental diseases, such as severe depression, are characterised by a persistently low mood.

Many medical conditions, such as Addison's disease, Lyme disease, MS, sleep apnea, and an irregular circadian rhythm, may lead to feelings of depression. Hypothyroidism, in which the thyroid gland isn't producing enough thyroid hormone, is characterised by this symptom, among others. One of the most prominent symptoms of many mental illnesses is an overall depressed disposition. Mood disorders are a collection of illnesses that are often seen as having significant impacts on one's mood. If a person has persistent sadness for at least two weeks and finds little to no joy in almost any activity, they may be suffering from major depressive disorder (MDD), which goes by a few different names. Dysthymia is another; it's characterised by persistent sadness but milder symptoms than a severe depressive episode. Mood, energy, or cognitive abnormalities may occur during one or more episodes of bipolar disorder, another mood disease. Additionally, it may include a depressive episode or episodes. Mood disorders are prevalent in people with borderline personality disorder. A mood disturbance that occurs as a psychological reaction to a recognised event or stressor and leads to noticeable emotional or behavioural symptoms but do not match the criteria for a severe depressive episode is known as an adjustment disorder with depressed mood.

In a review of Behavioural Risk Factor Surveillance System survey data from 2006 to 2008, the CDC discovered that 9 percent of the 2,35,067 individuals questioned across 45 states, DC, PR, and the US Virgin Islands suffered from depression. In the two weeks before the survey, 3.4% of respondents satisfied the criteria for present depression, indicating that they experienced either severe depression or "other depression" in that time. The incidence of present sorrow varied from 4.8% in North Dakota to 14.8% in Mississippi, according to the

Centres for Disease Control and Prevention (2010), who found that the rate was age-dependent.

Major depressive disorder has no established origin. Major depressive disorder seems to have several causes, as do the majority of mental diseases. Past depressive episodes, subsyndromal symptoms of depression, dysthymia, or an anxiety disorder increase the likelihood of experiencing another depressive episode, according to the American Academy of Child and Adolescent Psychiatry's (AACAP) practice parameters for depressive disorders in children and teens. After analysing data from 776 adolescents, Pine and colleagues discovered a substantial correlation between adolescent symptoms of major depression and subsequent adult experiences of major depression.

Literature review

Ajaykumar Rikhabchand Surana *et al* (2017) [1]

Relieving nerve stress using *Hamelia patens* has a long history of traditional use. Using GC-MS, this study will profile the bioactive extract and evaluate its possible antidepressant effects on male mouse performance in extracts of H. patens in chloroform and methanol. The mice were subjected to the forced swim test, tail suspension test, and open field test after being given acute doses of 100 and 200 mg/kg of extracts orally for seven days. Both the forced swim test and the tail suspension test utilised imipramine as their standard; however, the former used fluxetamine and the latter used 10 mg/kg/day orally. The chemical components of the bioactive fraction were identified using GC-MS profiling of the chloroform extract. The immobility period in the forced swim test and tail suspension test was significantly reduced after one week of treatment with the chloroform extract (100 and 200 mg/kg/day, p.o.) (p<0.05). There was no discernible effect of the extracts on locomotor activity in the open field test. Without substantially impairing their mobility, the data demonstrate that the H. patens extract exhibits behavioural effects similar to those of antidepressants in mice.

Preeti Chauhan *et al* (2019) [2]

Ornamental plants are placed in gardens, lawns, streets, and places along roadways to improve their aesthetic value. One contemporary use for these ornamental plants is in herbalism. *Hamelia patens* is one of the ornamental plants discussed in this study; it is native to the subtropics and tropics of the US. It may be found as far south as Argentina, but it is native to the south of the US. Coffee, scientifically known as *Hamelia patens*, belongs to the family Rubiaceae. It is a tropical plant species that grows best in hot, humid environments all over the world due to its great temperature tolerance. The medical uses of hummingbird bush, often called firebrush, go all the way back to prehistoric times. *Hamelia patens* is a miraculous plant with many medical purposes, such as easing pain, preventing infection, contracting the myometrium, lowering blood sugar, killing leishmania, protecting the liver, preventing depression, preventing urination, increasing urine output, mending wounds, reducing inflammation, and reducing pain perception. The phytoconstituents found in the plant's many parts—roots, leaves, stems, and bark-are what make these things happen. The fruit of H. patens is edible. The chemical components and medicinal uses of *Hamelia patens* were discussed in this article.

Peter Giovannini (2016) [3]

Significance in the field of ethnomedicine Diabetes, which now affects 387 million people worldwide, will surpass all other killers by 2030 and reach seventh place in the world. In 2012, 8.5% of Central Americans used herbal treatments, which is higher than the national average in comparable Latin American countries. Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama are the target countries for this upcoming research that aims to study medicinal plants used to treat diabetes and its consequences. Methodology and Steps our literature review included primary source accounts of traditional medicinal uses of plants for diseases and disorders of the skin, diabetes mellitus, kidneys, UTIs, cardiovascular disease, erectile dysfunction, blindness, and nerves. To study the data, we sorted the usage reports according to the most prevalent outcomes and the number of reports pertaining to diabetes management. Additionally, we reviewed the literature that would support the local uses of the most frequent species. Completed Good out of 535 species used to treat diabetes and its complications, we found *in vitro* and *in vivo* preclinical evidence of hypoglycaemic effect for 16 of the 20 species that were reported by at least two sources. In order to control diabetes, 104 different species are used. However, only seven of these species have been studied by teams of researchers consisting of more than three writers: The plant species include *Momordica charantia* L., *Neurolaena lobata* (L.) R. Br. ex cass. *Tecoma stans* (L.) Juss. ex Kunth, *Persea americana* Mill., *Psidium guajava* L., *Anacardium occidentale* L., and *Hamelia patens* Jacq. Some species used to control diabetes also assist with consequences, including as skin difficulties, kidney sickness, and urinary tract infections, according to persons with the disease in Central America. To summarise this page provides a synopsis of the historical use of medicinal plants in the treatment of diabetes in Central America, as well as an update on the current scientific knowledge that could explain these practices. There are several herbs that help alleviate this illness and its symptoms; however, only a few number of species are often employed in Central American medicine. Studies on the chemical, clinical, and pharmacological effects of the species often used to manage diabetes have been conducted in a mixed bag of quality and quantity.

Ebere Ifejirika Ezeonyi *et al* (2022) [4]

A traditional remedy for period pains, malaria, indigestion, and ulcers in Onitsha, a town in southeastern Nigeria, is an enema made from powdered leaves of Dacryodesklaineana (Pierre), a plant in the family Burseraceae. Because of its economic value and increasing ethnomedical importance, proper identification and evaluation are critical in avoiding adulteration. This research article offers a comprehensive investigation of the pharmacognostic, physicochemical, and phytochemical properties of Dacryodesklaineana leaves to assist in the identification of the crude medicine. The first step was to extract the leaves using methanol. Hydrogen peroxide, n-Hexane, ethyl acetate, butanol, and water were used to further fractionate the crude methanol extract based on increasing polarity. World Health Organisation (WHO) established protocols were followed for the physicochemical parameters, phytochemical components (qualitative and quantitative), and analysis. According to the results of the

quantitative and qualitative phytochemical screenings conducted on Dacryodesklaineana (Pierre), the most abundant phytochemical elements were alkaloids (3.6%), tannins (10.2%), saponins (16.2%), and flavonoids (9.3%). The concentration of these phytoconstituents was greatest in the crude ethanol extract. The ash content was 15.5% overall, with 5.5% of it being water-soluble and 4.5% being acid insoluble. The results showed a 6.3% moisture content, a 3.8% extractive value in alcohol, and a 5.5% extractive value in water. Finally, the well-established pharmacognostic standards can guarantee the authenticity, uniformity, and purity of Dacryodesklaineana leaves.

Shweta Tyagi, *et al* (2023) [5]

The phytochemicals purportedly contained in the leaf extracts of the medicinal plant *Hamelia patens* (aqueous, methanol, ethanol) prompted its selection as the object of this inquiry. As compared to the water-based extracts, the organic ethanol and methanol extracts had a larger component number. A broad range of biological components, including as amino acids, carbs, alkaloids, steroids, terpenoids, flavonoids, saponin, tannin, and cardiac glycosides, have been discovered by phytochemical investigations on organic extracts of *Hamelia patens*. The water-based and organic extracts were devoid of emodins, coumarins, quinones, phlobatannins, and fatty acids.

Epidemiology: Major depressive illness affects 20% of American women and 12% of American men. Up to 10% of hospitalised patients suffer from this disorder. There has been an upward trend in the number of lifetime instances of severe depression during the previous 70 years. Cousins are more likely to suffer from mental health issues, and symptoms appear earlier in each new group. An estimate of the prevalence of sorrow among individuals from 2006 to 2008 was published in 2010 by the Centres for Disease Control and Prevention (CDCP). While 3.4% of the 2, 35, 067 persons who met the criteria for severe depression also fulfilled the criteria for current depression, 9.1% of those adults satisfied both sets of criteria. A lot of countries have adult depression rates that are quite similar to the US. Surprisingly, estimates of depression among community-dwelling older adults are also rather stable. For instance, it's 2.9% in England, 2.0% in the Netherlands, 5.6% in Sweden, and 1.6% in Nigeria. Nevertheless, there is a dearth of data on the prevalence of severe depression in children and adolescents globally.

All Icelandic citizens born between 1895 and 1897 were tracked by Helgason until they were between the ages of 74 and 76. According to Hellgason (1964), the overall likelihood of any mental disease was 14.8% for women and 9.8% for males. Research conducted by the World Health Organisation (WHO) on the assessment of depressive disorders revealed striking similarities in the manifestation of depression symptoms across four countries: Iran, Switzerland, Canada, and Japan. Initiated shortly after WWII, the Stirling County Study tracked the incidence and prevalence of mental diseases in an Atlantic Canadian adult community for forty years. Across three separate samples collected in 1952, 1970, and 1992, the overall prevalence of depression remained at 5%. However, in the group that began in the year 2000, there were more women than males, and the frequency had shifted from older to younger individuals.

Rates of depression among the elderly varied greatly among the nine European nations studied by Copeland *et al*. in 1999. Prevalence was greater in females than males, and there was no correlation between chronological age and the disease's incidence. Overall, it was 12.3% prevalent, with a higher prevalence of 14.1% in women and 8.6% in males, according to a meta-analysis.

There may be a hereditary component to major depressive illness. Major depressive disorder is more common in those with a history of mood disorders (7% in the family), panic disorder, or alcoholism. Genetics may be involved in the aetiology of depressive disorders. A common genetic variation in the 5-HT promoter area affects depressive children differently from non-depressed children. That both severely depressed children and children at high risk for developing a mood illness had the same pattern of hormonal response to 5-hydroxy-L-tryptophan (L-5-HTP) challenge. A genetic predisposition towards depression in children may have been identified, according to these findings.

Genetics have a less role in late-onset depression compared to early-onset depression, according to some studies (Blazer, 2003) [12], and depression that begins beyond age 60 is a distinct condition with its own set of symptoms. When compared to younger individuals, older folks with depression are less likely to be related to someone with the disorder. While the exact connections between late-onset depression and certain genetic markers aren't always obvious, they do exist. Such variants include those affecting the 5-hydroxytryptamine transporter gene, brain-derived neutropic factor (BDNF), and apolipoprotein E. It's intriguing that these indicators have also been associated with antidepressant response, brain development, and cognitive deterioration.

Anxiety and the breakup of important relationships greatly increase the likelihood of major depressive disorder, however the condition may occur in the absence of any known triggers. According to psychodynamic theories, a person's risk of developing major depressive illness later in life increases in relation to the severity of significant losses experienced in childhood and the duration of stress. Cognitive distortions, such as negative thoughts, amplify and sustain the sad mood, which is inherent in depression as a behavioural reaction to repeated stressful situations. People with severe depressive disorder may be prompted or sustained by psychosocial stress, persistent pain, or physical illness. Because of their diminished independence and the disruption it might bring to their social networks, some elderly individuals may find being unwell distressing. Furthermore, there are a number of other psychosocial risk factors for terminal depression: Deteriorated social networks, Stress on Carers, Feelings of isolation, passing away, Unpleasant experiences. According to certain neurochemical hypotheses, the neurons in the CNS responsible for mood regulation are damaged by cortisol and other stress-related substances. Exposure to certain medicines or substances may potentially increase the likelihood of developing depression. Major depressive disorder is more common in those who abuse narcotics, alcohol, cocaine, and amphetamines. Based on a meta-analysis of relevant data, 5-HTTLPR acts as a mediator between stress and depression, according to one investigation into the role of a serotonin transporter promoter gene in this condition.

Children and adolescents

This same kind of effect was felt by both boys and females prior to puberty. According to Hankin *et al*. (1998) [15], the teenage years are a pivotal period when gender variations in sorrow become most noticeable. The number of new instances of depression reaches its peak at this time, and the overall rate of sorrow also rises throughout this period. Preschoolers had a 0.9% depression rate, school-aged children 1.9%, and teens 4.7%, according to research by Kashani and Sherman (1988) [16]. More over one-fifth of the female and over one-tenth of the male high school students surveyed reported having suffered from unipolar sorrow in their lifetimes. In the same research, only 1.6% of female students had bipolar disorder and 4.9% of male students had bipolar disorder with two or more episodes.

Regardless of socioeconomic background, an epidemiology research conducted by Siegel *et al*. (1998) [17] indicated that Hispanic adolescents in Los Angeles County, aged 12-17, reported higher rates of depressive symptoms compared to their white, black, or Asian American counterparts. Additionally, this research discovered that social class significantly impacts feelings of grief. Sadness levels often rise in tandem with income declines. The annual prevalence of major depressive disorder among southeastern American adolescents (11-16 years old) was 3.3%.

Elderly persons

People between the ages of 25 and 44 have the greatest incidence of depression, regardless of gender. Still, being hospitalised or dealing with a serious medical condition increases the likelihood of experiencing clinically severe depressive symptoms as one age. However, the melancholy may not be major depressive disorder (MDD) as it exhibits symptoms that are uncommon in depressed older adults.

Minor depression and major depression

Major depressive illness is probably less common than mild or subsyndromal depression. Functional impairment, medical cost, and quality of life are all lower in minor depressed individuals compared to those with major depressive disorder, but greater in older persons without depression.

Prognosis

Because major depressive disorder may induce suicide, health difficulties, relationship problems, substance addiction, and missed work days, it is very probable that a person with this illness will become ill or die. With the correct therapy, 70-80% of persons with severe depressive illness recover. The initial therapy effort may not work for as many patients as expected (up to 50%). Untreated major depressive illness affects 40% of patients who would still fulfil diagnostic criteria after a year, with 20% showing some improvement. It is associated with poorer outcomes to have rage and psychotic-like symptoms prior to therapy. If you have a history of long-term severe depressive illness or are in partial recovery, you are more prone to have recurrent episodes and treatment resistance.

Late-onset depression

Older adults may not fare as well as younger ones when it comes to late-onset depression. Their lack of social support and the severity of their physical handicap seem to play a role in this. It is crucial to pay special attention to the increasing risk of suicide, particularly among older men. Depression in the elderly is typically accompanied by other chronic health issues, which may amplify the symptoms or possibly lead to mortality. More medical treatments are used by those who suffer from depression. For instance, cardiovascular illness increases the risk of depression, and depression increases the risk of heart disease overall. Compared to those with coronary heart disease alone, the mortality rate for those with both conditions is much higher. The physiological and behavioural components of these connections are likely to coexist.

Millard used the "rule of thirds" to symbolise the prognosis for those suffering from late-onset depression. According to the study, about one-third of patients will have a complete disappearance of symptoms, while another one-third will continue to have some degree of discomfort. Sixty percent of those who have depression later in life will have a relapse, and forty percent of those persons will deal with chronic or recurrent depression, according to a research. Reportedly, moderate cognitive impairment and dementia are both increased in likelihood when paired with late-onset sorrow. According to Li *et al*. (2011) [18], those who have experienced depression in their older years are more likely to develop dementia due to any reason than those who have never suffered from depression. Dementia risk was not, however, associated with childhood depression. So far, there hasn't been any testing of the concept that treating sorrow can prevent moderate cognitive impairment and dementia.

Suicide

More than fifteen percent of persons who suffer from mood disorders take their own lives, and depression is the underlying cause of over half of all suicide attempts. According to the CDC, 33,300 persons lost their lives to suicide in 2006, ranking it as the tenth leading cause of death in the US. For those between the ages of 15 and 24, it ranks third in terms of mortality rates, and it is the second leading cause of death among teenagers overall. Although these statistics are accurate and women are more often diagnosed with depression than men, the greatest suicide incidence occurs in the male population over the age of 75, with 4.5 times the number of male deaths compared to female deaths. More over three-quarters of all suicides involve males, and 56 percent of those male suicides include the use of firearms. The majority of female victims have been poisoned. There are a number of characteristics that increase the likelihood of suicide, including being older and male:

Suicidal ideation or behaviour in the past • A serious depressive disorder diagnosis

A serious or life-threatening medical condition that is occurring at the moment (although a depressive diagnosis may reduce this risk). Recent traumatic occurrences, such as being thrown out of the house, a lack of social support, death, divorce, the presence of a firearm in the home, unexplained weight loss, and so on Taking medication could really protect.

Researchers have shown that major depressive disorder is associated with an increased risk of mortality and disability in patients with preexisting conditions, such as heart attacks, and that resolving the depressive episode enhances the efficacy of postoperative medical and surgical treatments. Between the ages of 15 and 34, the suicide rate among Native American and American Indian youth is about

double that of the global average. Suicide attempts among Hispanic women are much higher than those among males or non-Hispanic whites. Suicide accounted for 1.4% of global fatalities in 2005. Since underreporting is often a major issue, the actual figure is uncertain. Suicide is ranked as the seventh leading cause of mortality among individuals of all ages. There are more than 27 fatalities per 100,000 persons in ten Eastern European nations. The lowest rates are seen in Latin American and Muslim nations, with fewer than 6.5 incidences per 100,000 people.

Pathophysiology of depression

Major depressive disorder's underlying biology is still largely a mystery. Both animal and human investigations have pointed to a shift in 5-HT's role in the CNS as a potential driving force. Additional hormones that have been associated include norepinephrine (NE) and dopamine (DA). It is probable that central nervous system 5-HT activity contributes to the development of major depressive disorder, given the efficacy of selective serotonin reuptake inhibitors (SSRIs) in treating the illness. Also, even in those who aren't sad right now, a temporary drop in central nervous system 5-HT levels (caused by tryptophan depletion) might bring on a recurrence of depressive symptoms. Locations of serotonergic neurons associated with mood disorders include the dorsal raphe nucleus, the limbic system, and the left prefrontal cortex. Seasonal affective disorder is a severe kind of depression that manifests in the winter and then disappears throughout the warmer months. Changes in circadian rhythm and sunshine exposure seem to trigger seasonal affective disorder, which is characterised by fluctuations in 5-HT levels in the brain, according to studies.

Because they disrupt the neural circuits that regulate emotions, vascular injuries amplify feelings of depression. The frontostriatal pathways, which link the orbitofrontal cortex, dorsal cingulate cortex, anterior cingulate cortex, and dorsolateral prefrontal cortex, are among them. Additionally, the amygdala and hippocampus, which are regions of the limbic system, have been associated with feelings of sorrow. Functional neuroimaging research supports the hypothesis that decreased neocortical metabolic activity and increased limbic metabolic activity are associated with sadness (Mayberg *et al*., 1999). A defect in a region of the brain that aids in the regulation of emotional reactions has been identified in the last few years. This sheds light on the causes of depression and other mood disorders in certain individuals. By analysing positron emission tomography (PET) images, researchers were able to pinpoint an area of the prefrontal cortex that had significantly reduced activity in individuals suffering from bipolar and unipolar depression. This region of the brain is highly interconnected and associated with emotional processing. You may be aware that these other regions of the brain regulate DA, NO, and 5-HT, which are crucial for mood regulation.

Antidepressant activity

Forced swim test (FST)

Materials

Animals: Mature male Albino Swiss mice (22–26g)

Extract preparation: In a 1% acacia solution, all the components were combined. As always, get ready: A solution of 1% acacia was prepared with 2 mg/mL of powdered fluoxetine pills.

Drug treatment: The animals were administered 100 and 200 mg/kg/day for seven consecutive days after being given a 1% acacia solution containing extracts of *Ixora coccinea* and *Hamelia patens*. Day 4 and day 7 were the start of all the tests, which started one hour after the medicine, was administered. The second group served as a control and received 10 mg of fluoxetine per kilogramme of body weight in addition to a medium of 1% acacia solution.

Procedure: Day 4 and day 7 were the start of all the tests, which started one hour after the medicine, was administered. An open cylinder-shaped container of 14 cm in diameter and 20 cm height was used to train mice to swim individually. The temperature was 25±1°C and the water depth was 15 cm. Each test was followed by a change in the water in the buckets.

Evaluation: For six minutes, the animal was timed during its stillness period, which is defined as the duration during which it did not attempt to flee by swimming or any other means. When a mouse stopped struggling and remained floated in the water, moving just its head to keep above water, researchers judged that the mouse was immobile.

Tail suspension test (TST)

Animals: Mature male Albino Swiss mice (22–26g)

Extract preparation: In a 1% acacia solution, all the components were combined.

Standard Preparation: Imipramine pill powder, at a concentration of 2 mg/mL, was dissolved in a 1% acacia solution.

Drug treatment

The animals were administered 100 and 200 mg/kg/day for seven consecutive days after being given a 1% acacia solution containing extracts of *Ixora coccinea* and *Hamelia patens*. Day 4 and day 7 were the start of all the tests, which started one hour after the medicine was administered. Imipramine (10 mg/kg body weight) and a standard vehicle (1% acacia solution) were administered to the other group as a control.

Procedure: Using adhesive tape placed around 1 cm from the tail's tip, the mice are kept 50 cm off the floor.

Evaluation: Over the course of a 6-minute testing session, the individual's total length of time immobile was manually assessed using a timer. The inability to move any portion of the body, either while breathing or when suspended motionlessly, was defined as immobility. The metric that was discovered was the amount of time spent motionless. One of the parameters was the amount of time spent motionless.

Open-field test (OFT)

Animals: Albino Swiss mice (22-26g) male

Extract preparation: In a 1% acacia solution, all the components were combined. As always, get ready: A

suspension of 2 mg/mL g of fluoxetine pill powder was made using a 1% acacia solution.

Drug treatment

Animals were given a 1% acacia solution containing extracts of *Ixora coccinea* and *Hamelia patens*, and then given 100 and 200 mg/kg/day for seven days in a row. On day seven, precisely one hour after drug delivery, all experiments were started. For comparison, the second group had either a vehicle (1% acacia solution) or fluoxetine (10 mg/kg body weight).

Procedure: With nine identical squares on the floor, the animals were placed in their own 30x30x15 cm boxes. A 10% ethanol solution was used to disinfect the container after each mouse exposure.

Evaluation: After acclimating to the field for 5 minutes, the dogs were then observed for an additional 5 minutes as they walked (counting the number of squares traversed with all four paws), cleaned, and mounted.

Conclusion

Modern pharmaceuticals have narrow applications; they alleviate symptoms rather than causing or aggravating underlying health problems. Therefore, it is important to investigate local alternative medications that might alleviate depression. The antidepressant effects of two rubiaceae plants, *Ixora coccinea* and *Hamelia patens*, are the focus of this research. According to research in the medical literature, these plants have a long history of usage in the treatment of neurological conditions such nerve shock. The collected plants were given proper names, verified for authenticity, and then prepared for more research. Microscopic examination of young stems of *Hamelia patens* revealed epidermis and covering trichomes, among other characteristics. In contrast, mature stems had cork, phellogen, stone cells, medullary rays, xylem vessel, xylem parenchyma, phellogen fibres, cortex, colouring matter, flour grains, and starch. *Hamelia patens* stems contained a total of 2.182% w/w ash, with no more than 1.067 w/w water-soluble ash and no more than 0.217% acid-insoluble ash. During hot extraction, the alcohol extractive value did not surpass 5.324% w/w, while cold maceration had a value of 4.283% w/w. Similarly, during cold maceration, the water extractive value did not exceed 8.323% w/w, and total moisture content was 5.26% w/w according to LOD. To determine if *Ixora coccinea* and *Hamelia patens* may alleviate depression, the experiment was conducted on mice. For seven days, the mice were orally administered the extracts. Following that, they underwent a battery of tests included a tail suspension, an open field and a forced swim.

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