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Selected Medicinal Plants in the Alleviation of Depression, Sleep Disorders, Stress, and Related Mental Disorders

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Abstract

Depression, sleep disorders, and chronic stress constitute a significant public health problem and are among the most common disorders affecting mental, social, and professional functioning. Recent years have seen a growing interest in methods supporting the treatment of mental disorders, including the use of medicinal plants with potential antidepressant, sedative, and hypnotic effects. The aim of this study was to analyze the properties of selected medicinal plants used to alleviate the symptoms of depression, sleep disorders, stress, and related mental disorders, as well as to assess their effectiveness and safety based on the available scientific literature. This paper reviews domestic and international literature on the biological and

therapeutic effects of selected plant species, such as Hypericum perforatum, Valeriana officinalis, Melissa officinalis, Lavandula angustifolia, Passiflora incarnata, and Withania somnifera. Their active ingredients, mechanisms of action, and possible effects on the nervous system, stress levels, sleep quality, and depressive symptoms are discussed. Analysis of available research indicates that selected medicinal plants may have a beneficial supportive effect in the treatment of mood disorders, reducing mental stress, and improving sleep quality. The strongest evidence supports the antidepressant effects of St. John's wort and the sedative and sleep-inducing properties of valerian, lemon balm, and lavender. At the same time, caution is emphasized when using herbal preparations due to the potential for adverse effects and interactions with synthetic drugs.
Słowa kluczowe: depression, stress, sleep disorder, phytotherapy, medical plants

Introduction

Depression, according to Aaron T. Beck's cognitive theory, is a disorder characterized by negative thinking patterns and dysfunctional beliefs about oneself, the world, and the future. These beliefs exacerbate and perpetuate depressive symptoms through faulty information processing. According to this approach, individuals with depression tend to have: excessively negative self-assessments (e.g., feelings of worthlessness), a negative worldview (belief that the world is threatening and unfriendly), and pessimistic predictions of the future (belief that the situation will never improve) (Golonka et al., 2024). In medical terms, it is classified as a mood disorder according to the ICD-11, and as a major depressive disorder according to the DSM-5-TR. While depression is often referred to as an "illness," it should not be called that, as it is a disorder with a complex, multifactorial etiology, without a clear diagnostic biomarker, functional in nature, and often reversible, distinguishing it from diseases in the classic biomedical sense. This disorder is one of the most common mental health problems in modern society, affecting people of various age groups and socioeconomic status. According to the World Health Organization (WHO, 2017), at least 350 million people worldwide suffer from this condition, and its prevalence is almost twice as high in women as in men (Salk, Hyde & Abramson, 2017). In 2002, depression was the fourth leading cause of disability worldwide, and forecasts indicate that by 2030 it may move to second place, especially in low-income countries (Mathers et al., 2006). Depression causes psychological distress, decreased motivation, decreased professional performance, and negatively impacts family and social functioning. Patients affected by depression often require sick leave, social benefits,

rehabilitation, hospitalization, and other medical care, generating significant financial burdens for the healthcare system and society (Pużyński, 2002).

Phytotherapy or herbal medicine, has antidepressant properties and many studies show its effectiveness in mild and moderate depression (Chrzanowska, 2013; Linde, Berner & Kriston, 2008). Plant-based therapies have been used from ancient times to the present, making them one of the oldest healing systems in the history of medicine (Petrovska, 2012; Klimuszko, 2020). Scientific research indicates that many medicinal plants, including saffron (Crocus sativus L.), lavender (Lavandula angustifolia), St. John's wort (Hypericum perforatum L.), have clinically proven properties in relieving symptoms of depression and have anti-inflammatory and mood-modulating effects (Picheta et al. 2024). Herbal preparations can be used for a long time, showing a relatively low risk of side effects (Możdżeń et al., 2021), however, their use during prescription drug therapy should always be consulted with a doctor or pharmacist (Rogowska & Giermazaik, 2018). The aim of this study is to present the basic mechanisms of action of selected medicinal plants in alleviating stress and its associated disorders, including depression and sleep disorders.

Research Material and Methodology: This study is descriptive and review-based. Available scientific publications on the use of selected medicinal plants in alleviating stress, depression, and its associated disorders and sleep disorders were analyzed. Data sources included scientific articles, reports, and papers published between 2000 and 2025, available in international databases such as PubMed, Scopus, Web of Science, Google Scholar, print versions, and professional websites. Papers not available in full text, as well as popular science reports and unverified online sources, were excluded from the analysis.

1. Mechanisms of action of herbs in the prevention and treatment of depression

Plant materials used in the prevention and treatment of depression can be classified according to their dominant mechanism of action. The group that influences mood includes St. John's wort (Hypericum perforatum L.) and saffron (Crocus sativus L.), whose antidepressant effects have been confirmed in clinical studies (Lopresti & Drummond, 2014). Another group includes materials that modulate neurotransmitter systems, exhibiting sedative and anxiolytic effects. These include, among others, St. John's wort (Hypericum perforatum L.) and saffron (Crocus sativus L.). hop (Humulus lupulus L.), valerian (Valeriana officinalis L.), ginseng

(Panax ginseng C.A. Meyer), common basil (Ocimum basilicum L.) and lemon balm (Melissa officinalis L.), which affect the GABAergic and monoaminergic systems (Awad et al., 2007; Spinella, 2001; Sarris et al., 2011).

Herbs that support the regulation of sleep-wake rhythms and are used in the treatment of insomnia accompanying depression also play an important role. This group includes angelica (Angelica archangelica L.), common verbena (Verbena officinalis L.), greater celandine (Chelidonium majus L.), white deadnettle (Lamium album L.), and small-leaved lime (Tilia cordata Mill.), which have been shown to have a calming effect and improve sleep quality (EMA, 2016; Wichtl, 2004).

Some plant materials modulate the inflammatory response by reducing the levels of proinflammatory cytokines such as TNF-α, IL-1β, and IL-6, which are elevated in patients with depression (Miller & Raison, 2016). Their effects also include increasing the activity of serotonin, dopamine, and GABA, as well as influencing other neurochemical mediators (Sarris et al., 2011). Additionally, these materials exhibit antioxidant properties, neutralizing free radicals and activating antioxidant enzymes such as superoxide dismutase (SOD) and catalase, which is important in the context of oxidative stress in depression (Ng et al., 2008). They also have a modulatory effect on the hypothalamic-pituitary-adrenal (HPA) axis, leading to lower cortisol levels and normalizing the body's stress response (Jeon & Kim, 2016).

2. Modulation of inflammatory cytokines

Contemporary research suggests that chronic inflammation, particularly elevated levels of proinflammatory cytokines such as TNF-α, IL-1β, IL-6, and CRP, plays a significant role in the pathogenesis of depression. These cytokines can disrupt the metabolism of tryptophan, a serotonin precursor, leading to decreased serotonin levels and increased neurotoxic kynurenine (KIN) in the kynurenine pathway. Reduced serotonin availability in the central nervous system is associated with an increased risk of depressive and anxiety disorders (O'Connor et al., 2009; Schwarcz et al., 2012). Accumulation of kynurenine metabolites, including quinolinic acid, may additionally induce oxidative stress and modulate glutamate receptor function, exacerbating neurotransmission dysregulation in depression (Miller et al., 2013). Some herbs have anti-inflammatory effects in the brain, reducing both neurogenic and peripheral inflammation. The effect is to increase serotonin levels by inhibiting the enzyme indoleamine-2,3-dioxygenase (IDO), increase BDNF expression, and reduce microglial activation (Dantzer et al., 2008). By reducing proinflammatory cytokine levels, plant

materials may alleviate depressive symptoms, as confirmed by clinical and experimental studies (Miller, 2016). Herbs that support this mechanism include:

- Ashwagandha (Withania somnifera) – reduces IL-6 and TNF-α levels, reduces oxidative stress and modulates the HPA axis, supports neuroimmune balance (Chandrasekhar K, et al. 2012 & Singh N, et al. 2003),
- Bacopa monnieri – reduces IL-1β and TNF-α levels, improves cognitive function and reduces stress, and modulates neuroinflammation in the hippocampus (Kongkeaw, et al. 2014),
- St. John's wort (Hypericum perforatum) – reduces IL-6 and TNF-α levels; inhibits microglial activation, a neuroinflammatory mechanism in the central nervous system (CNS). Neuroinflammatory activation of microglia can lead to changes in neurotransmission, especially serotonergic neurotransmission, and structural damage in the CNS, contributing to depression, anxiety, and chronic fatigue syndrome. The herb reduces oxidative stress and exhibits anti-inflammatory and antidepressant effects (Kim, et al. 2010).
- Turmeric (Curcuma longa) reduces TNF-α, IL-1β, and IL-6 levels, inhibits the NF-κB pathway (a central regulator of the inflammatory and immune response, responsible for the development of depression) and COX-2 (an inducible form of cyclooxygenase with pro-inflammatory significance), and exhibits neuroprotective and antidepressant effects (Lopresti, et al. 2014 & Aggarwal, et al., 2009).
- Licorice (Glycyrrhiza glabra) reduces IL-6 and TNF-α levels, inhibits microglial activation, and supports neuroprotective function (Kao 2010).
- Rhodiola rosea (Rhodiola rosea) reduces TNF-α and IL-6 levels, and lowers cytokine expression in the nervous system. limbic system, has adaptogenic and anti-inflammatory properties (Mao, et al. 2015).

3. The effect of herbs on neurotransmitters

Neurotransmitter dysfunction in the central nervous system (CNS) is a key element in the pathophysiology of depression. The most important of these are dopamine (DA), serotonin (5-HT), noradrenaline (NA), GABA, glutamate, and acetylcholine (ACh). Plant materials have the ability to modulate the activity of these systems, which partially explains the effectiveness

of phytotherapeutic therapies in the treatment of depression, anxiety, insomnia, and other mental disorders.

Dopamine (DA) is a motivational and reward neurotransmitter that regulates attention, psychophysical energy, executive functions, and the experience of pleasure. Dopamine deficiency is associated with anhedonia, decreased motivation, and psychomotor retardation, typical symptoms of depression (Dunlop et al., 2007). Plant materials that influence dopamine levels include:

- St. John's wort (Hypericum perforatum), which inhibits the reuptake and activity of monoamine oxidase A, stabilizing mood (Gilani et al., 2005),
- bacopa (Bacopa monnieri), which improves neuronal communication and increases dopamine and serotonin levels,
- velvet bean (Mucuna pruriens), a source of natural L-DOPA – a dopamine precursor, used in the treatment of depression with dopaminergic deficiency (Katzenschlager et al., 2004),
- rhodiola rosea (Rhodiola rosea), which increases dopamine and noradrenaline levels and reduces symptoms of fatigue and depression (Panossian et al., 2004),
- green tea, whose ingredients, such as L-theanine and caffeine, indirectly support the dopaminergic system, improving concentration and reducing stress.

Serotonin (5-HT) plays a key role in regulating mood, sleep, appetite, cognitive function, and impulse control. Its deficiency is one of the main hypotheses for the pathogenesis of depression, contributing to increased depressive symptoms, increased anxiety, and disturbed sleep patterns (Cowen et al., 2015; Krishnan et al., 2008). Plants modulating the activity of the serotonergic system include bacopa, whose active compounds, bacosides A and B, increase serotonin availability and modulate the expression of 5-HT_1A receptors (Stough et al., 2008; Bhattacharya et al., 2000), St. John’s wort, which inhibits the reuptake of serotonin, dopamine and noradrenaline in a mechanism comparable to SSRIs (Butterweck, 2003), and saffron (Crocus sativus), which inhibits 5-HT uptake and increases its synthesis, demonstrating efficacy comparable to fluoxetine in the treatment of depression (Hausenblas et al., 2013).

Gamma-aminobutyric acid (GABA) is a major inhibitory neurotransmitter whose activation exerts a calming and anxiolytic effect, reducing nervous tension. Reduced GABA levels are

observed in individuals with depression, particularly those with a dominant anxiety component, highlighting its importance in the pathophysiology of the disorder (Dobros, 2017). Ingredients modulating the GABAergic system include lavender (Lavandula angustifolia), which increases the activity of GABA-A receptors and reduces anxiety (Woelk et al., 2010), and valerian (Valeriana officinalis), which increases GABA secretion and reduces its degradation (Khom et al., 2007).

Noradrenaline (NA) is involved in the regulation of mood, motivation, stress response, and energy levels. Its deficiency is manifested by apathy, decreased psychomotor drive, and reduced motivation (Ressler et al., 2000). Plants that influence the noradrenergic system include ashwagandha (Withania somnifera), which modulates NA and cortisol activity, exerting adaptogenic and antidepressant effects (Chandrasekhar et al., 2012), St. John's wort, and green tea (Nobre et al., 2008).

Acetylcholine (ACh) regulates cognitive processes, including memory and learning. Excessive cholinergic activity is associated with low mood, particularly in melancholic depression (Matławska, 2008). Plant materials that influence ACh include bacopa, which improves cholinergic transmission and supports neuroplasticity (Stough et al., 2001), and Ginkgo biloba, which increases ACh release and supports cognitive function (Kennedy et al., 2001).

Glutamate is the primary excitatory neurotransmitter, playing a key role in neuroplasticity and synaptic adaptation. Its action is mediated, among others, through ionotropic receptors, including NMDA (N-methyl-D-aspartate) receptors. Their activation is essential for neuroplasticity, the ability of synapses to adapt in response to environmental stimuli and learning. Proper NMDA function is crucial for mood regulation and cognitive processes. Excessive activation of NMDA receptors can lead to neurotoxicity and neuronal damage. This mechanism is particularly important in depression, anxiety disorders, and other psychiatric disorders, as neuronal damage in the hippocampus, prefrontal cortex, and other areas involved in emotion regulation can worsen mood disorder symptoms (Hashimoto, 2014). Some medicinal plants have the ability to modulate the glutamatergic system, including: Ashwagandha, kava (Piper methysticum), turmeric (Curcuma longa), ginkgo (Ginkgo biloba), rhodiola (Rhodiola rosea), and green tea. Their mechanisms of action include protecting neurons from glutamate excitotoxicity, modulating oxidative stress, and increasing BDNF expression, which promotes the maintenance of the glutamate-GABA balance (Dar et al.,

2010; Singh et al., 2002; Kulkarni et al., 2006; Ahlemeyer et al., 2003; Panossian et al., 2009; Levites et al., 2002).

4. Antioxidant effect in the context of depression

Depression is associated with oxidative-antioxidant imbalances, leading to the production of excessive amounts of free radicals, including reactive oxygen species (ROS) and nitrogen species (RNS), while simultaneously reducing the activity of endogenous antioxidant enzymes such as superoxide dismutase (SOD), catalase, and glutathione peroxidase (GPx). This imbalance leads to oxidative stress, in which excess ROS/RNS damages cell membrane lipids, proteins, and DNA in the central nervous system, contributing to neuronal dysfunction and the pathogenesis of psychiatric disorders, including depression (Ng et al., 2008; Correia et al., 2023; Maes et al., 2011). High levels of oxidative stress are associated with increased neuroinflammation, impaired neurotransmission, and reduced neuroplasticity, which contribute to the persistence of depressive and anxiety symptoms, and sleep disorders (Correia et al., 2023). Sleep disorders themselves may further exacerbate oxidative stress, as sleep plays a crucial role in brain detoxification and antioxidant regeneration; its disruption leads to further ROS accumulation and aggravated neuronal dysfunction (Chen, 2024). As a result, this chain may create a feedback loop in which oxidative stress exacerbates depressive symptoms, disrupts sleep quality, and promotes anxiety, while sleep disorders and chronic stress further exacerbate oxidative stress, worsening clinical symptoms (Correia et al., 2023; Chen, 2024). Herbs with antioxidant properties can support the redox balance and counteract neurodegeneration. Herbs with antioxidant effects include:

- Ashwagandha (Withania somnifera) - increases SOD and catalase activity, reduces cortisol and oxidative stress, and improves mitochondrial integrity in neurons (Choudhary et al., 2012).
- St. John's wort (Hypericum perforatum) - increases the activity of SOD and catalase enzymes in the brain, protects neurons from oxidative stress, and lowers the level of lipid peroxidation markers (Butterweck, 2003).
- Turmeric (Curcuma longa) - directly neutralizes free radicals (ROS, RNS), activates SOD, catalase, and glutathione peroxidase (GPx), and inhibits oxidative and neuroinflammatory stress in the hippocampus (Lopresti et al., 2014).
- Rhodiola rosea (Rhodiola rosea) protects nerve cells from oxidative damage and enhances the action of antioxidant enzymes (SOD, GPx), affects the expression of

BDNF (brain-derived neurotrophic factor), which prevents apoptosis (Panossian, Wikman, 2009),

- green tea (Camellia sinensis), through the presence of EGCG (epigallocatechin gallate), neutralizes free radicals, enhances the activity of SOD and catalase in the brain, and inhibits inflammation and lipid peroxidation (Park, et al., 2010).

5. The effect of herbs on the HPA

The hypothalamic-pituitary-adrenal (HPA) axis plays a central role in the body as a key regulator of the stress response. It functions through a precise signaling system in which the hypothalamus secretes corticotropin-releasing hormone (CRH), which stimulates the pituitary gland to release adrenocorticotropin (ACTH), which in turn stimulates the adrenal cortex to secrete glucocorticoids, primarily cortisol, enabling the body to adapt to stress (Correia et al., 2023; Shukla et al., 2023). Cortisol prepares the body for the "fight or flight" response by mobilizing energy and modifying metabolic, immune, and neuroendocrine functions. Under conditions of chronic stress and mood disorders such as depression, the HPA axis becomes dysregulated, resulting in upregulation of CRH, ACTH, and cortisol secretion and disruption of feedback mechanisms, increasing the maintenance of high cortisol levels and leading to chronic stress activation (Correia et al., 2023; Shukla et al., 2023). Such HPA dysfunction is closely associated not only with depression but also with anxiety, post-traumatic stress disorder, and chronic fatigue, and its effects include sleep disturbances, cognitive decline, and impaired emotion regulation. Some medicinal plants have the potential to modulate the HPA axis by regulating cortisol secretion, influencing glucocorticoid receptor expression, and reducing oxidative stress and inflammation, which may restore stress system homeostasis. In clinical studies, the use of extracts such as ashwagandha (Withania somnifera) has been associated with reduced cortisol levels and improved subjective stress, suggesting a beneficial effect on HPA function and psychosomatic symptoms related to depression and anxiety (Shukla et al., 2023). Ashwagandha regulates the activity of glucocorticoid receptors, stabilizing the HPA axis response (Chandrasekhar et al., 2012). Other medicinal plants that affect HPA function include:

- Basil (Ocimum sanctum, Tulsi) - lowers cortisol and ACTH levels (corticotropin, adrenocorticotropic hormone, adrenocorticotropin), reduces symptoms of anxiety and depression associated with HPA axis hyperactivity, and enhances the body's overall adaptation to stress (Bhattacharyya, et al., 2008).

- Licorice (Glycyrrhiza glabra), through its glabridin and glycyrrhizin content, influences cortisol metabolism (inhibits the 11β-HSD2 enzyme). It may support the function of the HPA axis in individuals with reduced cortisol reserves, and has anti-ulcer and adaptogenic properties (Armanini, et al., 2002).
- Rhodiola rosea (Rhodiola rosea) reduces cortisol secretion in response to stress, increases the body's resistance to stress factors, modulates the function of the HPA axis, and reduces symptoms of depression (Panossian, Wikman, 2010),
- Ginseng (Panax ginseng) modulates ACTH and cortisol levels, increases the body's resistance to mental and physical stress, and regulates the expression of glucocorticoid and mineralocorticoid receptors (Kim, et al., 2013).

6. Adaptogenic effect

The adaptogenic effects of herbs in the context of depression primarily involve modulating the body's response to stress, which is one of the main factors triggering and exacerbating depressive symptoms. Adaptogens have the ability to regulate the hypothalamic-pituitary-adrenal (HPA) axis, which promotes the restoration of homeostasis in response to chronic stressors and can lead to reduced levels of cortisol, a stress hormone whose long-term elevation is associated with the severity of depressive symptoms (Łuszczak & Kocki, 2025). They also affect neurotransmission, including the serotonin and dopamine systems, which are crucial for regulating mood and cognitive function. It has been suggested that secondary compounds contained in adaptogenic extracts may influence cellular allostasis and mechanisms related to the regulation of BDNF (brain-derived neurotrophic factor), promoting neurogenesis and neuronal plasticity—processes important in the treatment of depression and the restoration of nervous system function (Sánchez et al., 2023). Integrative reviews of the literature indicate that some adaptogens, including St. John's wort (Hypericum perforatum) and saffron (Crocus sativus), have the most clinical evidence for alleviating depressive symptoms, but other adaptogens, such as rhodiola rosea and ashwagandha (Withania somnifera), also merit further study for their potential to reduce allostatic burden and improve quality of life (Sánchez et al., 2023). Furthermore, adaptogens have a protective effect on the nervous system through antioxidant and anti-inflammatory properties and may support sleep, concentration, energy, and mental resilience, which indirectly contributes to alleviating depressive symptoms and improving psychophysical functioning (Malekijahan et al., 2025). Clinical studies and randomized controlled trials have shown that supplementation with

adaptogens, such as ashwagandha (Withania somnifera) and rhodiola rosea, can reduce the subjective perception of stress, lower cortisol levels, and improve sleep quality—a factor significantly associated with improved cognitive function and mood (Łuszczak, J., & Kocki, J., 2025). The issue of sleep in the context of adaptogens is important because sleep disorders often co-occur with depression and other mental disorders. In the scientific literature, adaptogens demonstrate the potential to improve sleep quality by normalizing the stress response and toning the autonomic nervous system, which promotes deeper sleep and prolongs sleep duration (Malekijahan et al., 2025). Adaptogens may also support other aspects of mental health, such as concentration, mental resilience, and general well-being, making them interesting candidates for complementary therapy for emotional disorders (Malekijahan et al., 2025).

7. Mechanisms of the influence of herbs on proper sleep in the context of depression and stress

Plant extracts used in sleep therapy may influence multifaceted neurobiological mechanisms that are disrupted in both stress and depression. Herbal teas and extracts of many plants influence the neurochemical processes regulating sleep by modulating GABAergic neurotransmission and other neurotransmitters involved in the sleep-wake cycle. GABA (gamma-aminobutyric acid), the primary inhibitory neurotransmitter in the brain, promotes relaxation and the initiation of sleep. Extracts from some herbs may act on GABA receptors, similarly to some hypnotic medications, leading to increased levels of this neurotransmitter, shortening sleep latency, and improving sleep quality (Bruni et al., 2021; Yeom et al., 2024). Adaptogens such as Withania somnifera (ashwagandha) have the ability to modulate the hypothalamic-pituitary-adrenal (HPA) axis by reducing cortisol levels, which, when excessive, disrupt sleep. Sustained high cortisol levels are associated with insomnia and difficulty falling asleep, while lowering them promotes physiological and mental regeneration, which translates into better sleep quality (Grabowski, 2024; PMC, 2025). Herbs also influence healthy sleep indirectly by reducing stress, anxiety, and emotional tension. Improving overall mental performance, reducing impulsive stress responses, and balancing mood promote easier falling asleep and longer sleep duration (Grabowski, 2024; Bruni et al., 2021). Some plant compounds may influence the regulation of the sleep-wake cycle, including indirectly through effects on neurohormonal pathways such as melatonin and other neurotransmitters. Herbal extracts have been shown to influence serotonin and dopamine

neurotransmission, which may support normal circadian rhythms and synchronize the sleep cycle (Bruni et al., 2021).

8. Safety rules for using herbs

Herbs, despite their natural origin, may interact with medications, including psychotropic drugs. Their use in patients with depression and other mental health conditions and disorders should be preceded by consultation with a doctor or pharmacist. The same applies to medications taken for sleep disorders, regardless of their cause. This is particularly true for individuals taking antidepressants, antianxiety medications, contraceptives, or other medications with a narrow therapeutic index (Otero et al., 2024). St. John's wort (Hypericum perforatum) has the best documented safety record. It may interact with medications (Izzo & Ernst, 2020; Otero et al., 2024; Merk, 2025). St. John's wort extracts may induce drug-metabolizing enzymes such as cytochrome P450 (especially CYP3A4) and P-glycoprotein, leading to the accelerated breakdown of many drugs and reduced therapeutic efficacy (Izzo & Ernst, 2020; Otero et al., 2024). Clinically significant interactions have been reported with antidepressants (potential for enhanced serotonergic effects and risk of serotonin syndrome), immunosuppressive drugs, contraceptives, anticoagulants, anticancer drugs, and antiretroviral drugs. Concomitant use of St. John's wort with selective serotonin reuptake inhibitors (SSRIs) or other drugs that increase serotonin levels may lead to serotonergic toxic syndrome—a life-threatening condition characterized by, among other things, excessive excitability, seizures, and cardiac arrhythmias. St. John's wort preparations may increase skin sensitivity to sunlight (phototoxicity), which increases the risk of sunburn and skin reactions upon exposure to UV radiation. Adverse effects of ashwagandha (Withania somnifera) may cause drowsiness, low blood pressure, and gastrointestinal disturbances (Grabowski et al., 2024). Valeriana (Valeriana officinalis) may contribute to symptoms such as drowsiness, headaches, and stomach upset; interactions with sleep medications are rare (Sarris et al., 2020). Adverse effects of various herbal preparations may include symptoms such as dizziness, dry mouth, and gastrointestinal disturbances (Izzo & Ernst, 2020; Otero et al., 2024; Merk, 2025). There are certain restrictions when using herbs in certain individuals. They are not recommended for use in women during pregnancy or breastfeeding. Data on the safety of various herbs during this period are insufficient, and the potential risks of adverse effects on the fetus and infant are unknown. Therefore, this period is contraindicated for herbal preparations (Tiran, 2021; Dugoua et al., 2020; Otero et al., 2024). The risk of herb-drug interactions increases in patients with comorbidities and in individuals taking multiple medications concurrently,

particularly in the geriatric population. Interactions between herbs and synthetic drugs and the occurrence of adverse reactions in these groups of people increase significantly (Izzo et al., 2020; Otero et al., 2024). In addition to the clinical condition of the individuals taking them, standardization plays an important role in the safety of herbal preparations. The quality, degree of standardization, and content of active substances in herbal preparations can vary significantly between products, which affects their efficacy and safety profile. Standardized preparations containing a specific amount of active compounds (e.g. hypericin and/or hyperforin in the case of Hypericum perforatum) show a more predictable therapeutic effect and a lower risk of side effects (Otero et al., 2024; Merk, 2025).

Summary

Depression is currently one of the most common mental disorders, causing significant consequences for both the affected individual and their family and professional environment. It leads to mental suffering, loss of joy in life, and reduced quality of functioning in everyday life. Depression also has significant economic consequences resulting from expenditures on medications and therapies, reduced work productivity, increased sick leave, and more frequent doctor visits and hospitalizations, sometimes associated with coexisting somatic symptoms such as fainting, cardiac arrhythmias, or pain in internal organs and the musculoskeletal system. Raising public awareness about depression can significantly improve the quality of life of individuals affected by the disorder and their surroundings. Herbal medicine plays a significant role in supporting depression treatment, as it can complement pharmacotherapy and psychotherapy. However, the use of herbal preparations should only be done after consulting a doctor or pharmacist, as their improper use, like any form of therapy, can lead to adverse health effects.

Disclosure

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