



## HYPERICUM PERFORATUM L. –TRADITION, CULTURE AND ETHOPHARMACOLOGICAL USES IN ROMANIA

Teodora Alina Neag<sup>1</sup>  
Laura Nicolescu<sup>2</sup>  
Darău Petru Aurel<sup>3</sup>  
Claudia-Crina Toma<sup>1\*</sup>

<sup>1</sup> Department of Pharmacognosy, Phytochemistry, Phytotherapy, Faculty of Medicine, Pharmacy and Dental Medicine, "Vasile Goldiș" Western University Arad, Feleacului Street, Nr. 1, 300041, Romania

<sup>2</sup> Public Health Direction Arad, Spitalului Street Nr. 2-4, Romania

<sup>3</sup> Department of Forestry and Agrotourism, Faculty of Natural Sciences, Engineering and Informatics, "Vasile Goldiș" Western University of Arad, Liviu Rebreanu 86, 310426, Arad, Romania

### Abstract

Majority of the people still rely on traditional medicine for their everyday healthcare needs. Despite widespread use of plant resources in traditional medicines, bioassay analysis of very few plant species have been conducted to investigate their medicinal properties and to ascertain safety and efficacy of traditional remedies. *Hypericum perforatum* has remained a treatment used in the tradition of the Romanian people for anxiety, depression, cuts, burns and digestive diseases. Documented pharmacological activities, including antidepressant, antiviral, and antibacterial effects, provide supporting evidence for several of the traditional uses stated for St John's wort.

**Keywords:** *Hypericum perforatum*, ethnopharmacology, hypericin, tradition

### INTRODUCTION

Majority of the people still rely on traditional medicine for their everyday healthcare needs. People, who use traditional remedies, may not understand the scientific rationale behind their medicines, but they know from personal experience that some medicinal plants can be highly effective if used at therapeutic doses. People believed that plant remedies used for medication are less toxic than modern medicines.

The scope and tools of ethnopharmacological studies are derived from pharmacology and toxicology, pharmacognosy, chemistry, medicine, botany and ethnobotany, medical and cultural anthropology, and other disciplines. Part of the objectives of ethnopharmacology is the documentation of the plants

and animals used as drugs and poisons in such cultures, and the ethnographic description of their preparation and use. Despite widespread use of plant resources in traditional medicines, bioassay analysis of very few plant species have been conducted to investigate their medicinal properties and to ascertain safety and efficacy of traditional remedies. (Elisabetsky et Etkin,)

### BOTANY

*Hypericum perforatum* is a perennial herb indigenous to Europe, western Asia and northern Africa. *Hypericum perforatum* L. is a herbaceous perennial plant with lignified stem base. The leaves are opposite, sessile, ovate-lanceolate, with perforated secreting glands due translucent appearance. Actinomorfe flowers are yellow-gold, bisexual. Each

\* Author to whom all correspondence should be addressed: e-mail: [claudiatoma2004@yahoo.com](mailto:claudiatoma2004@yahoo.com)



"Vasile Goldiș" Western University of Arad

flower presents five lanceolate sharp sepals, 5 petals and numerous stamens yellow-gold grouped. The flowers are arranged in inflorescences. The fruit is a capsule with small brown seeds that produce sounds (called St. John's wort). (PDR, 1998).



Fig.1 *Hypericum perforatum* L.

The species grows in meadows in the plains and hills. In Romania grows in drier meadows, edges of forests, along roads. The most common species of *Hypericum* in our country are *H. hirsutum* with hairy stems and leaves, *H. acutum*, *H. maculatum*, *H. montanum*, *H. elegans*. (Racz et al, 1970)

In Romania *Hypericum perforatum* L. is widespread in Transylvania (Arad, Bihor, Bistrita-Nasaud, Brasov, Caras-Severin, Harghita Hunedoara, Maramures, Salaj, Suceava), Muntenia (Arges, Buzau, Dâmbovița, Ilfov), Oltenia (Gorj County, Olt) Moldova (Bacau, Botosani, Neamt, Suceava) and Dobrogea (Tulcea), but can harvest and in all other counties. Growing areas are strongest counties Cluj, Salaj and Dâmbovița; there are favorable conditions in Arad, Arges Bacau Bihor Botosani County, Neamt, Suceava, Vrancea.

The vegetative organ used in therapy is the aerial part of *Hypericum perforatum* (*Hyperici herba*) harvested at the beginning of flowering. The period of harvesting is from July to September. The vegetable product is dried in shade or at 30-35°C.

### CHEMICAL COMPOSITION AND MEDICINAL PROPERTIES

All the air part contains volatile oil (0.1% with 2-methyloctane and  $\alpha$ -pinene) located in translucent points of leaves, hypericin (0.2-0.3%), flavonoids (0.5-1%) (hyperoside, quercetol, quercetin, rutoside), tannins, choline, carotene, valerianic acid, vitamin C, saponins, minerals. (Ardelean et Mohan, 2008, Racz et al., 1970)

Hypericin is a naphthodianthrone which has the effect of photosensitivity. Hypericism occurs more frequently in patients with chronic treatment with *Hypericum perforatum* and albino persons. The exposure to the sun produces erythema, pruritus, even skin necrosis. Also neurological symptoms appear: psychomotor excitation, epileptic seizures, convulsions. (Hanganu et Popescu, 2002)

Therapeutic actions of *Hypericum perforatum* are: cholagogue, choleric, healing, anti-inflammatory, antidepressant, sedative, antibacterial, antifungal, antiviral. It is used in treatment of, depression, insomnia, biliary dyskinesia, liver failure, enterocolitis, chronic hepatitis, gastric ulcer, cholecystitis. The external preparations containing *Hypericum perforatum* are used in gingivitis, dental abscesses, wounds, burns, eczema, rheumatism, hematoma. (Ardelean et Mohan, 2008)

Most recent interest in *H. perforatum* has focused on its antidepressant effects, and only recently has its antimicrobial activity been evaluated against a number of bacterial and fungal strains. The plant has a wide range of medicinal applications, including skin wounds, eczema, burns, diseases of the alimentary tract and psychological disorders. The extracts of the plant have shown potent antibacterial activity against a number of bacterial strains. The antibacterial principles identified so far are hyperforin and hypericin. (Saddiqe et al., 2010)

Recently, its antidepressant properties have become the subject of numerous clinical trials accreditation as a medicament. The mechanism by which exerts its antidepressant plant remains unknown. Research published in Germany attests antidepressant activity of a substance in the plant, hyperforin, which seems to have a beneficial influence on the activity of serotonin in the brain.

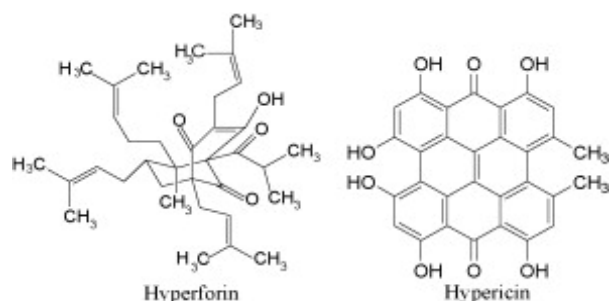


Fig.2 Hyperforin and hypericin chemical structure

### TRADITIONAL USES

In our traditional medicine is widely used in liver disease, hypotension, and externally as an oil in wound



healing. It was used in folk medicine for treating nervous, digestive, respiratory diseases and wounds.

Because of its wound healing, St. John's Wort is used to treat traditionally burns and irritation. Externally, St John's wort is recommended for minor burns and to relieve neuralgia, sciatica and other painful inflammation.

It has been demonstrated and that has a positive effect in mild cases of depression are prescribed as an antidepressant. St. John's Wort is prescribed and nervous symptoms such as fatigue and sleep disorders.

Old popular belief says that sap blood color and flowers balsamic action are related to blood and wounds of Saviour. Indeed, the oil is the one best oil for wounds, because it has soothing, anti-inflammatory and healing actions. A legend tells about this plant:,, When the Lord's favorite apostle was under cross he carefully collected plants sprayed with saint blood, to give them as precious gifts to pious believers at Saviour death. " Red sap of this aromatic plant mysteriously leaves the impression that in sub-punch purple golden-yellow flowers would live hidden a drop of blood of our Saviour.

In Sanziene day which is a sacred symbol of light and heat St. John's wort flower shines in all its splendor. Once, girls braided the plant in wreaths and who danced around the fire on the night of SINZIENI had to wear a crown of St. John's Wort - SINZIENI crown. On this night full of mystery, virgins twig St. John's Wort on the water, to see the blooming flowers as will be the year of their suitor.

## PREPARATION

In hepatobiliary diseases tea is obtained by short boiling of 5 g drug in 250 ml water and consumed twice per day in the morning and evening.

In hyperacidity and gastric ulcer tea is administered in small amounts several times a day, warm.

St. John's Wort oil (*Oleum Hyperici*) is a gastrointestinal dressing with protective, healing and antispasmodic effects. It is prepared as follows: 10 g *Herba Hyperici* moisten with 10 g alcohol. after 10-12 hours in tightly closed vessels add 80 g of sunflower oil is heated for three hours on the water bath. After 5-7 days the mixture was filtered and the red oil is stored in a cool place. Should be taken several times a day one tablespoon. It can be used externally.

For depression is prepared an infusion of two teaspoons of St. John's Wort 250 ml of boiling water, leave to infuse for about three minutes. Drink at least three cups of tea a day for two to three months.

Sufferers of gastritis, gastric ulcer or colitis can make an infusion of 1-2 teaspoons of dried St. John's wort in a cup of boiling water. Allow to infuse for three minutes. Can be drunk 2-3 cups of tea a day.

For sleeping trouble at night before going to bed, prepare an infusion by pouring a cup of boiling water over one teaspoon of dried and ground bloom well. Cover the beaker, allowed to infuse for a few minutes, then filtered.

Over time, St. John's wort has been recognized beneficial effect in calming nerves in the treatment of hepatitis, stomach ulcers. The volatile oil contains sesquiterpenes hydrocarbons to-pinene and mineral salts. Biliary dyskinesia sufferers can be treated with St. John's wort oil, prepared from 200 g of plant, is poured 400 ml sunflower oil, take the mixture soak for six weeks in a cool dark place. After this take another two weeks in the sun, then filtered through gauze. Take one teaspoon after meals. Moreover, St. John's wort oil can be used as an ointment for gingivitis, dental abscesses, eczema, hemorrhoids, neuralgia, wounds and burns.

## CONTRAINDICATIONS

During the administration of any preparation St. John's wort (creams, ointments, oils, tinctures, infusions) avoid sun exposure due to the effect of photosensitivity (allergic dermatitis may occur sun can aggravate various skin diseases: vitiligo, psoriasis, dermatitis). Treatment with St. John's wort is better not take more than two months to one month break, after which it can resume to avoid unwanted symptoms: neuralgia, headaches, photosensitivity (the phenomenon of sensitization to light).

Hyperforin, which may be present in the herbal preparations, is responsible for interactions with other drug substances which are metabolized by certain CYP450 isoenzymes.

The extent of the induction of the metabolic enzymes is dose-dependent and time-dependent. The oral use for the traditional preparations is limited with 2 weeks. This duration of use may be sufficient for the induction of the activity of the CYP-enzymes in the case of high-hyperforin preparations.

## CONCLUSIONS

*Hypericum perforatum* has a long history of use as an herbal treatment for a variety of ailments. It was used in folk medicine for treating nervous, digestive, respiratory diseases and wounds. Over the past 20 years, it has become a mainstream alternative treatment



for depression, as well as holding promise as a therapy for cancer, inflammation, bacterial and viral infections, and other disorders.

High dosages might lead to phototoxicity in susceptible individuals. Extracts of *Hypericum perforatum* do appear to interact with other medications, especially drugs that impact liver and intestinal enzyme function. Therefore, individuals taking *Hypericum perforatum* along with other medications should be aware of such potential drug interactions, and should report their use to their health-care providers.

## ACKNOWLEDGEMENTS

This paper was realised with the support of the research project no. 31/09.03.2015 DSP-UVVG ARAD –project manager prof. CLAUDIA CRINA –TOMA, PHD. "Cercetare interdisciplinara privind incidenta posibilelor reactii adverse si interactiuni medicamentoase medicament-supliment nutritiv pe baza de hypericum perforatum"

## REFERENCES

- E Antal D., Coste I., *Botanică farmaceutică. Sistematica plantelor.* Ed. Orizonturi Universitare, Timișoara, 2004
- Ardelean A., Mohan G., *Flora medicinală a României,* Editura ALL, Bucuresti , 2008, p.33;
- Ardelean A., Mohan G., *Experimentul biologic,* Ed. Victor B Victor, Arad, 2008;
- Elaine Elisabethsky, Nina L. Etkin - *Ethnopharmacology: An Overview Vol. I*
- Hanganu D., Popescu H *Plante toxice,* Ed. Medicală Universitară „Iuliu Hatieganu”, Cluj-Napoca, 2002
- Kenneth M. Klemow, Andrew Bartlow, Justin Crawford, Neil Kocher, Jay Shah, and Michael Ritsick. *Medical Attributes of St. John's Wort (Hypericum perforatum), Herbal Medicine: Biomolecular and Clinical Aspects.* 2nd edition
- Racz G., Laza A., Coiciu E., *Plante medicinale si aromatice,* Ed. Ceres, 1970, p.168
- Zeb Saddiqe, Ismat Naeem, Alya Maimoona, *A review of the antibacterial activity of Hypericum perforatum L., Journal of Ethnopharmacology, Volume 131, Issue 3, 2010, P. 511–521*
- \*\*\* *Assesment report on Hypericum perforatum L., Herba,* London, 2009
- \*\*\* <http://sanatatenaturala.3x.ro/sunatoarea.htm>
- \*\*\* PDR for herbal medicines, 1998