Hypericin--the facts about a controversial agent.

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Abstract

Hypericin is a naturally occurring substance found in the common St. John's Wort (Hypericum species) and can also be synthesized from the anthraquinone derivative emodin. As the main component of Hypericum perforatum, it has traditionally been used throughout the history of folk medicine. In the last three decades, hypericin has also become the subject of intensive biochemical research and is proving to be a multifunctional agent in drug and medicinal applications. Recent studies report antidepressive, antineoplastic, antitumor and antiviral (human immunodeficiency and hepatitis C virus) activities of hypericin; intriguing information even if confirmation of data is incomplete and mechanisms of these activities still remain largely unexplained. In other contemporary studies, screening hypericin for inhibitory effects on various pharmaceutically important enzymes such as MAO (monoaminoxidase), PKC (protein kinase C), dopamine-beta-hydroxylation, reverse transcriptase, telomerase and CYP (cytochrome P450), has yielded results supporting therapeutic potential. Research of hypericin and its effect on GABA-activated (gamma amino butyric acid) currents and NMDA (N-methyl-D-aspartat) receptors also indicate the therapeutic potential of this substance whereby new insights in stroke research (apoplexy) are expected. Also in the relatively newly established fields of medical photochemistry and photobiology, intensive research reveals hypericin to be a promising novel therapeutic and diagnostic agent in treatment and detection of cancer (photodynamic activation of free radical production). Hypericin is not new to the research community, but it is achieving a new and promising status as an effective agent in medical diagnostic and therapeutic applications. New, although controversial data, over the recent years dictate further research, re-evaluation and discussion of this substance. Our up-to-date summary of hypericin, its activities and potentials, is aimed to contribute to this process.