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Hypericum extract WS® 5570 binds to melatonin receptors and increases melatonin plasma levels in rats: Possible contribution in the therapy of insomnia indepression

Sabrina Kraft, Michael Nöldner, Ulrike Scheyhing, Beatrix König, Nicole Merz and **Egon Koch**
Dr. Willmar Schwabe Pharmaceuticals, Germany

WS® 5570 is a stabilized drymethanolicextract (80% V/V;drug-extract ration 3-7:1) from *Hypericum perforatum* L. (St. John's wort) with defined contents of hyperforin, hypericin, and flavonoids. It is an approved medication for the treatment of mild or moderate depression in Germany and many other countries worldwide. Circadian rhythms have been shown to be fundamentally disturbed in patients with depression, which also suffer frequently frominsomnia. *H. perforatum* contains melatonin, known as the sleeping hormone and hypericin, a potent photodynamic agent. Melatonin and analog compounds have been observed to exert beneficial effects not only on sleep and circadian abnormalities but also mood disorders, learning and memory. Hence, the present work investigated the effect of WS® 5570 on the melatonergic system known to be involved in the genesis of depression. Receptor binding studies demonstrated that WS® 5570 and isolated ingredients hypericin, hyperforin and flavonoid 13', II8-biapigenin inhibit binding of [125I]-2-iodomelatonin to human melatonin MT_1 and MT_2 receptors at concentrations between 3 and 30 µg/ml. In male rats, oral treatment with 100-900 mg/kg WS® 5570 for 4 consecutive days dose-dependently increased and prolonged peak melatonin plasma levels during the dark phase of a fixed 12 h diurnal light cycle. The present results indicate that WS® 5570 in a dual manner interferes with the melatonergic system and by these means may at least partly exert its positive therapeutic effects on mood and disturbed sleep in depression. However, further studies are required to elaborate the mode of action in more detail.

Biography

Sabrina Kraft is a Biologist and has completed her PhD in 2015 at the University Hospital in Heidelberg. Currently, she is working as a Group Leader in the Pharmacology Department of Preclinical Research at Dr. Willmar Schwabe Pharmaceuticals in Karlsruhe (Germany).

Sabrina.Kraft@schwabe.de

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