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Synthesis and evaluation of derivatives of Hesperetin as anti-stress agents

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The aim of the present study is to synthesize and evaluate derivatives of Hesperetin as anti-stress agents. The various chemicals have been so far used for relieving stress but show many side effects. So, natural product is used in the current experiment as having no expected side effects. Hesperidin (HN_1) is isolated from orange peels, don't interact with any drug or food substance and is extremely safe even during pregnancy. Hesperidin is converted to Hesperetin (HN_2). Further bromo derivative (HN_3) and amine derivatives (NH_4 - HN_7) of Hesperetin are synthesized. After synthesis of derivatives, Anti-Stress activity is evaluated with Restraint stress immobilization animal model using behavioral (Locomotor, Ambulatory, Rearing, Grooming activity) and Biochemical (Corticosterone level in blood) parameters in mice. Two dose levels i.e. 140mg/kg and 200mg/kg are used in the *in vivo* animal model. This is perhaps the first report of the evaluation of hesperetin as well as its derivatives possessing anti-stress properties and no reports of anti-stress activity of these compounds are available in literature so far. Bromo derivative (HN_3) is most effective followed by aniline (HN_6) derivative in a dose-dependent manner. Hesperidin, as well as Hesperetin, is also effective in treating stress. Ethylamine derivative (HN_5) is more effective than methylamine (HN_4) derivative. These results suggest that hesperetin could be used as anti-stress candidates in the future.

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