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3 - Herbal remedies against Huntington's disease: Preclinical evidences and future directions

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https://doi.org/10.1016/B978-0-323-90572-5.00010-X

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Abstract

Herbal medicines, or phytochemicals can treat various neurological disorders, and is actually preferred over synthetic drugs due to their lower cost, negligible side effects, easy availability and therapeutic efficiency. This article lists a total of 13 plant extracts, 27 plant derived natural compounds and 3 herbal formulations that were found to therapeutically cure Huntington's Disease, mainly by eliminating the toxic mHtt proteins(the product of the mutant gene responsible for HD). The various plant compounds, fractions, extracts and herbal formulations were summarized from popular scientific search engines and then analyzed on the basis of their source and bioactivity. To understand the behavioral, biochemical and morphological changes caused by HD, experimental models like 3-NP and transgenic animal models like rats, mice, Drosophila and Caenorhaditis elegans were used. Plants such as Bacopa monnieri, Celastrus paniculatus, Centella asiatica, Gastrodia elata, Panax ginseng, and Withania somnifera are some examples that possess anti-HD properties. Some examples of promising plant compounds possessing similar properties are fisetin, curcumin, hesperidin, trehalose, onjisaponin B, sesamol, resveratrol, kaempferol and melatonin. Herbal formulations discussed here are B307, CLMT and YGS. These are proved to be more beneficial than single herbs because they can regulate more targets. However, detailed study and further research should be conducted to determine the therapeutic efficacy of herbal extracts and compounds in HD models.



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Keywords Huntington's disease; Medicinal plants; Phytochemicals; 3-NP; Anti-HD