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In Vitro Hepatoprotective and Anti-Hepatitis B Activitis of Cyperus rotundus Rhizome Fractions

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Abstract : Cyperus rotendus rhizomes are used as traditional medicine, including Ayurveda in chronic liver diseases and hepatitis B. We investigated the in vitro hepatoprotective and anti-hepatitis B virus (HBV) potential of Cyperus rotundus rhizome organic and aqueous fractions. Of these, the n-butanol and aqueous fractions showed the most promising, dose-dependent hepatoprotection in DCFH-injured HepG2 cells at 48 h. DCFH-toxicated cells were recovered to about 88% and 96%, upon treatment with n-butanol and aqueous fractions (200 □g/ml), respectively compared to DCFH-only treated cells. Further, C. rotundus fractions were tested for anti-HBV activities by measuring the expression levels of viral antigens (HBsAg and HBeAg) in the HepG2.2.15 culture supernatants. At 48 h post-treatment, the ethyl acetate, n-butanol and aqueous fractions showed dose-dependent inhibition wherein at a higher dose (100 □g/ml), HBsAg production was reduced to 60.27%, 46.87 and 42.76%, respectively. In a time-course study, HBsAg production was inhibited up to 50% and 40% by ethyl acetate and n-butanol fractions (100 □g/ml), respectively on day 5. Three three active fractions were further subjected to time-dependent inhibition of HBeAg expression, an indirect measure of HBV active DNA replication. At day 5 post-treatment, ethyl acetate and n-butanol fractions downregulated HBV replication by 44.14% and 24.70%, respectively. In conclusion, our results showed very promising hepatoprotective and anti-HBV potential of C. rotendus tubers fractions in vitro. Our data could, therefore, provide the basis for the claimed traditional use of C. rotendus for jaundice and hepatitis.

Keywords : anti-hepatitis B, cyperus rotundus, hepatitis B virus, hepatoprotection
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