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Chemopreventive and Therapeutic Efficacy of Enhalus acoroides against Diethylnitrosamine Induced Hepatocellular Carcinoma in Wistar Albino Rats

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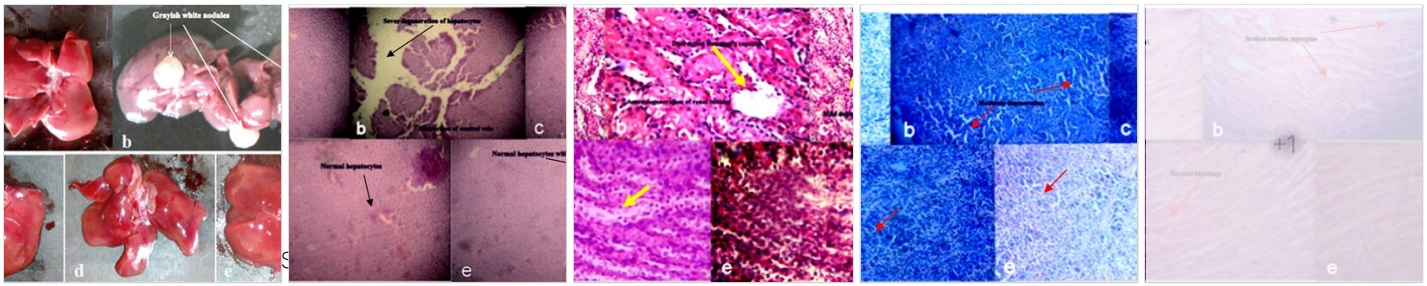
Amudha Parthasarathy · M. Jayalakshmi · Vidya R. · B. N. Poojitha

Overview Citations (3) References (52)

Abstract and figures

Hepatocellular carcinoma is the second most cause of death among the various cancers worldwide. Recent research searching an alternative therapy for cancer treatment without or less side effects. Many studies indicated the beneficial effects of Enhalus acoroides. There has been no scientific validation on antioxidant and chemopreventive potential of ethanolic extract E. acoroides against hepatoma. To assess the hepatoprotective activity of E. acoroides (EEEA) against DEN-induced hepatoma using Wistar albino rats. Animals were distributed into five groups, each containing six rats. To Group I — control rats — normal saline given. Groups II, III, IV and V rats were injection of DEN at a dose of 100 mg/kg body weight i.p. to induce liver cancer. At the commencement of 6th week, Group III rats supplemented with EEEA at a dose of 200 mg/kg body weight/day upto 16 weeks. Group IV rats supplemented with EEEA for 1 week before the administration of DEN and continued till the sixteenth week. Group V supplementation of silymarin at a dose of 100 mg/kg body weight at the beginning of 6th week after the injection of DEN and continued upto 16 weeks and considered as positive control rats. The efficiency of E. acoroides for its antioxidant hepatoprotective and activity evaluated in rats against DEN-induced liver damage. The hepatoprotective ability of EEEA at a dose of 200 mg/kg was examined against DEN at a dose of 100 mg/kg/b.w. induced hepatotoxicity and analysed by evaluating serum liver and kidney marker levels, lipid profile (TG, HDL, LDL and total cholesterol) and serum tumour markers (DNA, RNA, AFP and CEA). Supplementation of EEEA to DEN treated rats was determined by evaluating various antioxidant biomarkers (SOD, CAT, GPx, GSH, Vit E and Vit C). Histopathological studies and morphometric gross analysis were also support the consequences of this study. A significant improvement of antioxidant defence and declined MDA levels within the serum of EEEA treated animals compared to the DEN-induced hepatoma. The supplementation of EEEA declined the serum liver, kidney and serum tumour marker levels and lipid profile as comparatively to Group I rats. The histopathological changes were changed on supplementation of EEEA demonstrating its protecting effects on hepatocytes as comparatively to Group I rats. Our significances recognized that crude extract (ethanol) of E. acoroides revealed a potential impact against DEN-induced hepatoma and assists as a superior choice for chemopreventive treatments.



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ORIGINAL ARTICLE

Chemopreventive and Therapeutic Efficacy of *Enhalus acoroides* against Diethylnitrosamine Induced Hepatocellular Carcinoma in Wistar Albino Rats

P. Amudha[1] · M. Jayalakshmi[2] · R. Vidya[1] · B. N. Poojitha[1]

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Abstract

Hepatocellular carcinoma is the second most cause of death among the various cancers worldwide. Recent research searching an alternative therapy for cancer treatment without or less side effects. Many studies indicated the beneficial effects of *Enhalus acoroides*. There has been no scientific validation on antioxidant and chemopreventive potential of ethanolic extract *E. acoroides* against hepatoma. To assess the hepatoprotective activity of *E. acoroides* (EEEA) against DEN-induced hepatoma using Wistar albino rats. Animals were distributed into five groups, each containing six rats. To Group I — control rats — normal saline given. Groups II, III, IV and V rats were injection of DEN at a dose of 100 mg/kg body weight i.p. to induce liver cancer. At the commencement of 6th week, Group III rats supplemented with EEEA at a dose of 200 mg/kg body weight/day upto 16 weeks. Group IV rats supplemented with EEEA for 1 week before the administration of DEN and continued till the sixteenth week. Group V supplementation of silymarin at a dose of 100 mg/kg body weight at the beginning of 6th week after the injection of DEN and continued upto 16 weeks and considered as positive control rats. The efficiency of *E. acoroides* for its antioxidant hepatoprotective and activity evaluated in rats against DEN-induced liver damage. The hepatoprotective ability of EEEA at a dose of 200 mg/kg was examined against DEN at a dose of 100 mg/kg/b.w. induced hepatotoxicity and analysed by evaluating serum liver and kidney marker levels, lipid profile (TG, HDL, LDL and total cholesterol) and serum tumour markers (DNA, RNA, AFP and CEA). Supplementation of EEEA to DEN treated rats was determined by evaluating various antioxidant biomarkers (SOD, CAT, GPx, GSH, Vit E and Vit C). Histopathological studies and morphometric gross analysis were also support the consequences of this study. A significant improvement of antioxidant defence and declined MDA levels within the serum of EEEA treated animals compared to the DEN-induced hepatoma. The supplementation of EEEA declined the serum liver, kidney and serum tumour marker levels and lipid profile as comparatively to Group I rats. The histopathological changes were changed on supplementation of EEEA demonstrating its protecting effects on hepatocytes as comparatively to Group I rats. Our significances recognized that crude extract (ethanol) of *E. acoroides* revealed a potential impact against DEN-induced hepatoma and assists as a superior choice for chemopreventive treatments.

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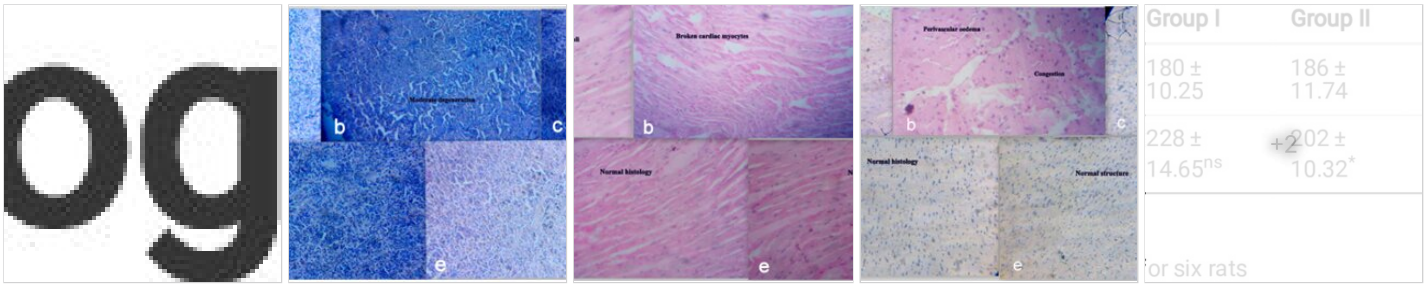

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Background: Hepatocellular carcinoma plays an inadequate mention in the second cause of death because of cancer worldwide. An alternative therapy with high rate of prognosis and also without side effects. Several data indicated the therapeutic efficacy of Enhalus acoroides. There were no scientific studies on chemopreventive and antioxidant potential of Enhalus acoroides against hepatocellular...

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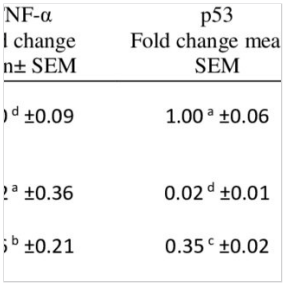

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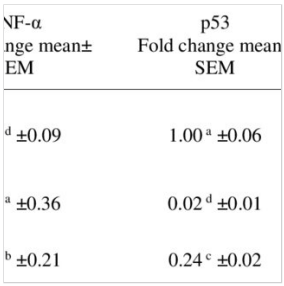

NF-α nge mean± EM	p53 Fold change mean SEM
[d] ±0.09	1.00 [a] ±0.06
[a] ±0.36	0.02 [d] ±0.01
[b] ±0.21	0.24 [c] ±0.02

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Ravi Kumar

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