

# The role of curcumin in streptozotocin-induced hepatic damage and the trans-differentiation of hepatic stellate cells.

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Diabetic patients frequently suffer from non-alcoholic steatohepatitis. The current study aimed to investigate the role of curcumin and the response of hepatic stellate cells in streptozotocin (STZ)-induced hepatic damage. Sixty male rats were divided into three groups. The normal control injected with a citrate buffer vehicle and the diabetic control group which was injected intraperitoneally (IP) with a single-dose of streptozotocin (50 mg/kg body weight) and a diabetic group was treated with an oral dose of curcumin at 80 mg/kg body weight daily for 60 days.

**Results.** Curcumin effectively counteracts oxidative stress-mediated hepatic damage and improves biochemical parameters.

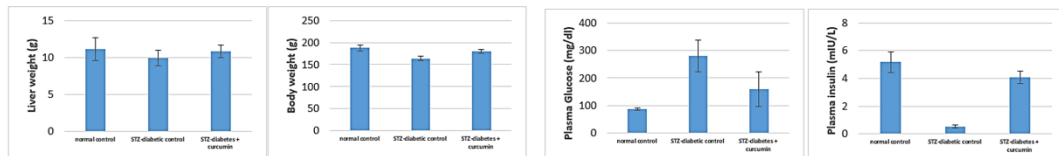


Fig. 1. Body and liver weight of different groups. The mean is given in columns, and error bars represent the standard deviation (SD).

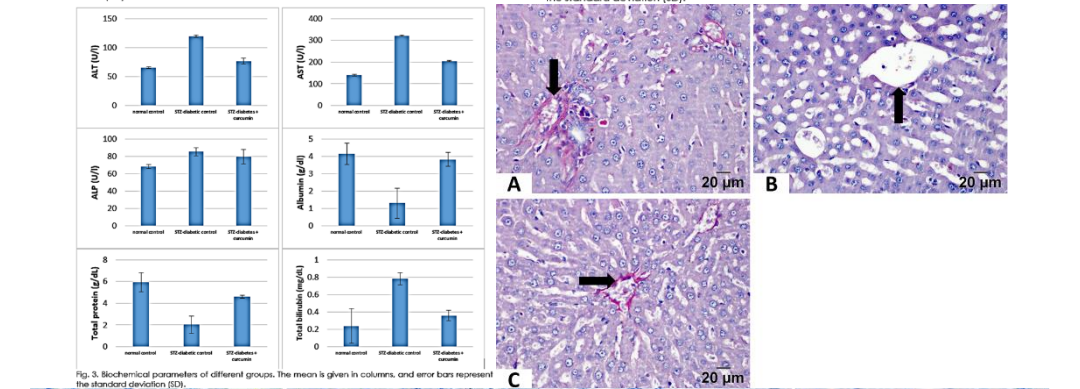


Fig. 3. Biochemical parameters of different groups. The mean is given in columns, and error bars represent the standard deviation (SD).

Alpha-smooth muscle actin ( $\alpha$ -SMA) was significantly reduced, and insulin antibodies showed strong positive immunoreactivity with curcumin administration. These results optimistically demonstrate the potential use of curcumin, which is attributed to its antiradical/antioxidant activities and its potential  $\beta$ -cell regenerative properties. Also, it has the capability to encourage the trans-differentiation of hepatic stellate cells into insulin-producing cells for a period of time. In addition, as it is an anti-fibrotic mediator that inhibits hepatic stellate cell activation and the transition to myofibroblast-like cells, this suggests the possibility of considering curcumin's novel therapeutic effects in reducing hepatic dysfunction in diabetic patients.