Effect of long term administration of DML10 - a polyherbal formulation on serum glucose levels, serum lipid levels and haematological indices in dietary induced hyperlipidaemic rats

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ABSTRACT

This study evaluated the effect of long term administration of a polyherbal formulation (DML10) consisting of 12 medicinal plant materials, on serum glucose levels, serum lipid levels and haematological indices in dietary induced hyperlipidaemic rats. Wistar albino rats were made hyperlipidaemic by feeding cholesterol rich diet continuously for one month and same diet was continued during the period of experiment. Selected rats were randomly divided into four groups (n=10). The test group was treated daily with DML10 (10.8 ml/kg/day; strength: 65±0.54mg/ml in dry weight of the decoction) orally for 90 consecutive days. Two positive control groups were treated orally with Simvastatin (0.9 mg/kg/day) or Fenofibrate (18 mg/kg/day) separately where as the placebo group received only comparable volumes of distilled water during the 90 days period. Serum glucose levels and lipid levels and haematological indices of the rats were determined using standard methods. All rats showed significant increase in fasting glucose level and fasting total cholesterol level after feeding with cholesterol rich diet for one month.

After 90 days of the treatment, the fasting serum glucose levels of the rats treated with DML10, Simvastatin and Fenofibrate were significantly decreased by 51%, 29% and 23% respectively in comparison to that of placebo group. Serum triglyceride level of the DML10 treated rats was decreased significantly by 59% of the level of placebo group where as Simvastatin or Finofibrate administration resulted only 42% and 47% decrease in triglyceride levels respectively. DML10 treatment had no significant effect on serum HDL levels but serum total cholesterol and LDL levels were decreased significantly by 54% and 60% respectively in comparison to those of placebo group. Simvastatin group showed 64%, and 82.5% decrease in same parameters and Fenofibrate group showed 56% and 69% decrease respectively. Serum HDL levels were significantly increased in Simvastatin group (35%) and Fenofibrate group (31%). Test and positive control groups showed no significant changes in primary and secondary erythrocytic indices, total leucocyte counts and platelet counts in the blood and hepatic enzyme activities and creatinine levels in the serum compared to those of placebo group. The results revealed that long term administration of DML10 could decrease fasting lipid levels (except HDL) and fasting glucose levels in the sera of dietary induced hyperlipidaemic rats without affecting the haematological parameters.