

Abstract:

Peripheral nerve injury is the global problem in which the quality of life of patients are affected. Peripheral nerve injury causes disability in patient and loss of neural control in denervated part of the body. Peripheral nerve injury (PNI) has many causes such as trauma that can bring the loss of structure and function. There are many plants known for their neuro-protective and nerve regeneration potential. The effect of Mentha piperita (MP) root and leaf extracts on nerve regeneration are evaluated in the current study. In this experiment, the random grouping of total 30 mice in 5 groups (n=6). The groups are Aqueous (Aq) MP root, leaf, control and Ethanolic (Eth) MP root, leaf. Firstly, the mice were trained for behavioral studies. The nerve crush injury was done on all groups of mice. We prepared the root and leaf extracts separately and were given to mice orally for 28 days. The distilled water was given to control group mice. The AqMP root extract in dose of 250mg/kg was given to mice in group 2. The AqMP leaf of dose 250mg/kg was given to mice in group 3. The mice in group 4 were given the EthMP root of 500mg/kg and group 5 was administered orally with EthMP leaf of 500mg/kg. Sciatic functional index, toe spread and pinprick assay were done for behavioral assessment of sensory and motor functions. The improvement of functions was evident in treated groups when compared with control group. The sensory and motor function improvement were seen during 2nd and 3rd week of surgery. The behavioral data was further confirmed by histological analysis on 14th day of surgery. The results showed more nerve regeneration in AqMP root 250mg/kg group as compared to other groups of extract treated and control groups. There was clear reinnervation of nerve in extract treated groups as compared to control group. There are increase myelination in following order (CTL group < AqMP leaf group < AqMP root group). There is more axon fiber in muscle histology in following way (CTL group < AqMP leaf group < AqMP root group). Thus, it is concluded that Mentha piperita extracts are good for nerve regeneration after sciatic nerve injury and can be used as supporting medicine to treat peripheral nerve injury.