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Antinociceptive property of *Emblica officinalis* Gaertn (Amla) in high fat diet-fed/low dose streptozotocin induced diabetic neuropathy in rats.

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Abstract

Diabetic neuropathic pain is an important microvascular complication in diabetes mellitus and oxidative stress plays a vital role in associated neural and vascular complications. The present study investigated flavonoid rich fruit extract (ethyl acetate:methanol fraction) of *E. officinalis* (10 mg/kg), in type II diabetes (high fat diet fed/low dose streptozotocin) induced diabetic neuropathy in male Sprague-Dawley rats. Diabetic rats exhibited a significant hyperalgesia (nociception) as compared to control rats. Treatment with *E. officinalis* extract (EOE) and quercetin in diabetic rats showed significant increase in tail flick latency in hot immersion test and pain threshold level in hot plate test compared to control rats. The changes in lipid peroxidation status and anti-oxidant enzymes (superoxide dismutase and catalase) levels observed in diabetic rats were significantly restored by *E. officinalis* extract and quercetin treatment. Both, *E. officinalis* extract and quercetin attenuated diabetic induced axonal degeneration. The study provides experimental evidence of the preventive and curative effect of *E. officinalis* on nerve function and oxidative stress in animal model of diabetic neuropathy. Since, *E. officinalis* fruit is already in clinical use for diabetic patients it may be evaluated for preventive therapy in diabetic patients at risk of developing neuropathy.

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