

Pharmacognosy, Phytochemistry & Natural Products

October 26-28, 2015 Hyderabad, India

Therapeutic efficacy of trigonelline-based standardized extract of fenugreek seeds on levodopa induced dyskinesia in 6-OHDA lesioned rat model of Parkinson's disease

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The objective of the present work is to explore the therapeutic efficacy and possible mechanism of trigonelline-based standardized extract of fenugreek seeds (IBHB) on L-dopa Induced Dyskinesia (LID) in 6-Hydroxydopamine (6-OHDA) lesioned rat model of Parkinson's disease (PD). The motor symptoms of PD and LID were induced in rats with single unilateral intra-cerebro ventricular injections of 6-OHDA in the striatum area of brain (PD) on day-0 and daily treatment with L-dopa+benserazide from Day-29 to Day-56 (LID), respectively. Rats were then randomly divided into groups and administered with sub-acute treatment either with vehicle, amantadine (40 mg/kg, I.P.) or IBHB (15, 30 or 60 mg/kg, oral) for next 45 days and then sacrificed for collection of brain striatal samples for *ex vivo* experiments. Sub-acute treatment of IBHB showed dose-dependent reduction in behavioral parameter scores (Abnormal Involuntary Movements (AIMS), grid test, catalepsy bar test, forelimb adjusting steps) as compared to vehicle treated LID group. During *ex vivo* experiments, IBHB showed restoration of up-regulated neurotransmission (serotonin and dopamine turnover and 3-O-methyldopa levels), immuno-reactivity (FosB and 5HT2c) and mRNA expressions (c-FOS, CO-1, Homer-1, Parkin, Pdyn, Penk and PINK1) and down-regulated mitochondrial respiratory chain complexes activity and mRNA expression of JunD in striatum as compared to vehicle treated LID control rats. In conclusion, sub-acute treatment of IBHB showed promising therapeutic anti-dyskinetic efficacy in preclinical model of LID in rats and supports the utility for the improved treatment of LID and PD.

Biography

Prasad Thakurdesai is a General Manager, Scientific Affairs at Indus Biotech Private Limited, Pune, India since 2008. He has completed his PhD in 2006 from Nagpur University, India. He has experience of 17 years in academic institutions and 9 years in pharmaceutical industries. He has guided 2 PhD and more than 30 MPharm research students. He has published more than 77 articles in international and national peer reviewed journals, presented 49 papers in international conferences. His research interests include pharmacology, toxicology, nutraceuticals and Health Related Quality of life (HRQoL).

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