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To

Director R&D
Kalasalingam Academy of Research and Education
Anand Nagar
Krishnankoil – 626 126

Sir,

Sub: Application for Ph.D. in Biotechnology – Reg.

I am applying for the Ph.D. programme in Biotechnology. I have to complete my M. Tech (BIO-Tech) by April 2020. Due to COVID -19, pandemic the final semester exams are not conducted. So I am submitting the required document regarding M. Tech. up to third semester. Kindly consider my candidature. I assure that I will submit the T.C and consolidated mark statement for M. Tech as soon as I get it.

Thank you very much.
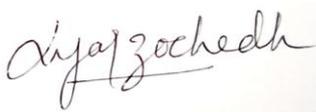
(A.S. Azar Zochedh)

Tentative topic :   **Evaluation of medicinal plants for Neurological Disorder: Epilepsy**

Epilepsy is a chronic neurological disorder especially affects the central nervous system including brain. The abnormal brain activity is causing seizures or periods of unusual behavior, sensations, and sometimes loss of awareness. The symptoms of seizure can vary depending on the individuals. Some people with epilepsy simply stare blankly for a few seconds during a seizure, while others repeatedly twitch their arms or legs. Those symptoms are generally repeated more than two times are required for an epilepsy diagnosis. Due to epilepsy, approximately 8% of populations are affected in India. The diagnosis of epilepsy is consisting of four types they are focal, generalized, combined generalized and focal, and unknown types. The   animal models, (p35$^{-/-}$and the Kv1.1$^{-/-}$mice) are exhibits seizure phenotypes and associated with temporal lobe epilepsy. In vitro models glial cells treated with iberiotoxin (Kv 1.1 channel blockers) are mimicking as epilepsy model cells. Treatment of epilepsy is surgery can control seizures for the majority of people and remaining requires lifelong medication to control seizures. To overcome these problems the alternative strategies are Ayurvedic medicine. The root of *Sida cordifolia* L (Popularly known as 'bala') is used for a wide range of illness (Pole, 2006; Santos et al 2005; Silveira et al, 2003;).The bala is used to cure antirheumatic, antipyretic, analgesic, diuretic, hypoglycemic, and many neurological disorder. The root of *S. cordifolia* has been recently reported as a potential therapeutic to reduce severity of Parkinsonism (Khurana et al., 2013).

The 100 g of chopped and dried *S. cardfolia* roots will be soaked in ethanol (90%) for 15 days at room temperature.   After 15 days, the solvent was evaporated under reduced pressure and then lyophilized. About 2 g of solid mass was obtained and preserved in 4 ºC. From these extract estimate total phenol content as a marker and accordingly dilute the extract used for both *in vitro* and *in vivo* treatments. Based on these grounds the following objectives are proposed:

1. The identification of differentially expressed proteins in glial cells (control), ibreotoxin treated glial cells (mimicking epilepsy) and different dilutions of *S. cardifolia* extract treated in iberiotoxin treated glial cells as therapeutics will be identified in 2D gel followed by LC-MS/MS analysis
2. The novel and *S. cardifolia* altered proteins will be further validated through immunolocalization
3. Epilepsy influenced proteins such as GABA receptor, p35 protein, reelin, gallanin and glia, will be assessed in glial cells, iberiotoxin treated cells and combination of ibreotoxin and *S. cardifolia* extract treated cells.
4. The epilepsy model mouse Kv1.1$^{-/-}$ will be feed with *S. cardifolia* extract and validate the proteins such as GABA receptor, p35 protein, reelin, gallanin and glia.
5. Histopathological analysis of temporal lobe brain of control, Kv1.1$^{-/-}$ and *S. cardifolia* extract-treated Kv1.1$^{-/-}$ mice.