World Congress on
Biotechnology

BIOTECHNOLOGY-2011
doi:10.4172/2155-952X.1000001

A comparative analysis of phytochemicals present in aqueous extracts of callus cultures and stem segments of *Ficus religiosa* L.

Priyanka Siwach, Anita Rani Gill, Deepti, Anita and Shilpa
Ch Devi Lal University, India

The plants based medicine has served the mankind in the treatment of various ailments since times immemorial. In India around 25000 effective plant based formulations are used in traditional and folk medicine. There is a need of scientific investigations to prove the rationale of using these formulations in healthcare and such research have accelerated with a great pace in recent years. Some major pharmaceutical companies are currently conducting extensive research on plant materials for possible new pharmaceuticals. Plants have given some novel pharmaceuticals like opium, aspirin, digitalis, quinine which are in a great demand. The Sacred Fig, *Ficus religiosa* L (family moracea) is a multipurpose forest tree with great religious holdings, native to India, Bangladesh, Nepal, Pakistan, Sri Lanka and southwest China. *Ficus religiosa* is used in traditional medicine for about 50 types of disorders including asthma, diabetes, diarrhea, epilepsy, gastric problems, bacterial infections, diabetes, gonorrhea, skin diseases, inflammatory disorders, infectious, sexual disorders and many more. Despite its diverse medicinal properties, the tree has not been exploited commercially for pharmaceuticals purpose. The religious holdings and social values associated with this tree restrict its use for isolation, identification, characterization and commercial supply of secondary metabolites. Hence, there is an urgent need for alternative source. Plant cell cultures were introduced as an important tool for studying and producing plant secondary metabolites in the mid 1960s. Till now there is no report of production of any secondary metabolite from the callus tissue of Ficus religiosa L. We aimed at optimizing the conditions for producing the callus cultures from the nodal segments of 45-50 years old tree of Ficus religiosa L. The callus so produced was continuously propagated and proliferated remarkably for a span of six months. Various extracts of the callus tissue and the stem segments of the tree were prepared using the different solvents in decreasing order of solvents. A comparative analysis of various phytochemicals was carried out between aqueous extract of callus and aqueous extract of stem. Various qualitative tests for different phyto-chemicals showed the remarkable presence in callus tissue as indicated by dark intense color reactions whereas in stem extract faint colour reactions appeared for some. Total phenolic content was many folds more in callus cultures as compared to in vivo source, as indicated by quantitative tests. A discussion will be presented regarding various factors for production of various secondary metabolites in callus cultures.