Evaluation and Elucidation of Bioactive Compounds from *Leptogium rivurale* Through *in-vitro* and *in-silico* Studies [†]

Prakash P. [1,*], Bommana Chanakya [1], Guraja Sreeja [1], Amritha Harini [1]

[1] Department of Biotechnology, Sathyabama Institute of Science and Technology, Chennai, Tamil Nadu, India
* Correspondence: kpprakashmtech@gmail.com;
[†] Presented at International e-Conference on Bioengineering for Health and Environment (ICBHE 2020)

Abstract: *Leptoguium rivurale* is a flooded jelly skin lichen, the surface of which becomes jelly when wet. It is a cyanolichen in which the photosynthetic partner is a cyanobacterium in the genus name *Nostac*. The present study was performed to investigate the bioactive constituents of *Leptoguium rivurale*. Samples were collected from forest regions of Kodaikanal. The collected Lichens were washed and dried and then extracted by using methanol and distilled water. Qualitative analysis of phytochemicals from the extracts showed the presence of carbohydrates, glycosides, phenols, terpenoids, saponins, and proteins. The amount of carbohydrates, phenols, and proteins was found to 350u/g and 380u/g, 200u/g, and 240u/g and 490u/g and 320u/g in aqueous and methanol extracts. The α-amylase enzyme inhibition assay ranged from 47.2% to 58.4% for methanol extract and from 35.12% to 51.1% for aqueous extract. The DPPH radical scavenging activity ranged from 27.6% to 49.8% for methanol extract and from 21.3% to 42.2% for aqueous extract. The anti-inflammatory activity ranged from 40.5% to 86.2% for methanol extract and from 49.4% to 79.2% for aqueous extract. Then the extract was given for GC-MS analysis. The molecules that were obtained in this analysis were used as ligands and in-silico molecular docking simulation was made using AutoDock software through which it was found that out of the docked ligands cyclohexanol and oxirane were the potential drug candidates.

Keywords: *Leptoguium rivurale;* phytochemicals; anti-inflammatory activity; AutoDock software.

Conflicts of Interest

The authors declare no conflict of interest.