This study is focused on exploring the bioactive potential of natural products produced by marine filamentous cyanobacteria that were previously sampled and isolated from Lakshadweep as part of an international collaboration between researchers from India, USA, and China. The living cyanobacterial cultures, preserved environmental samples, and organic extracts thereof were maintained at the Marine Micro-Algal Culture Collection (MACC) facility of the Indian National Centre for Aquatic Animal Health for further detailed biological and chemical investigations.

Figure 3. Chemical extraction and fractionation procedures

The Okeania sp. KHT08APR18-5 extract, and fractions prepared from it, were tested for antimicrobial activity against the acid-fast bacterial model organism, Mycobacterium smegmatis, using Resazurin microplate assay and cytotoxicity was evaluated with the 3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyl tetrazolium bromide (MTT) assay using the MCF7 human breast cancer cell line.

Future Directions

The molecules need to be purified for evaluation of the chemical structures and biological activity. The lesser activity observed after fractionation steps could be indicative of the presence of synergists or other active compounds, since pure molecules should otherwise have higher activity than they do in mixtures.

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