

# “Isolation and Characterization of Proteins and Oligopeptides with potential Antitumor Properties”

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As the second leading cause of worldwide deaths, cancer remain as one of the most feared diseases in the world. With the progression of modern technology, the upsurge of using natural resource as a direct medicine for cancer treatment becomes preferable. Combining the shifting towards natural resource for cancer medicine and the developing interest on peptides as the anticancer agent, this leads to the research studies. The study was aimed on discovering protein and peptides possessing potential anticancer activity from commonly available/used medicinal plants. Several common plants that traditionally known to have medicinal properties which are *Orthosiphon aristatus*, *Gynura procumbens*, *Clinacanthus nutans*, *Piper sarmentosum*, *Piper betle* and *Senna alata* were used as the source sample. The crude protein samples for these plants were extracted cold overnight by using biological buffers; Phosphate Buffered Saline (PBS) and HEPES buffer. Protein profiling and quantification were performed by using SDS-PAGE and Bradford assay respectively. Using nasopharyngeal cell lines (NP69; normal cell line and HK-1; cancer cell line), the crude extracts were tested for its anticancer activity resulting in narrowing down the targeted plant samples to *Orthosiphon aristatus* and *Piper sarmentosum*. The two plants samples were fractionized using ammonium sulfates precipitation techniques and the fractionized sample cell toxicity values were measured by using MTT assay. The bands of active fractions were sent for identification using LC-MS/MS spectrometry. The proteins identified from the fraction with anticancer activities were most slightly from heat-shock protein and S-adenosylmethionine protein in *Piper sarmentosum*, and Superoxide dismutase protein and plastocynin protein in *Orthosiphon aristatus*.

**Keywords:** anticancer activity, protein, protein fractionation, cancer cells, cell toxicity

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