

## Bioassay guided isolation of active compounds from hexane extract of fruits of *Garcinia quaesita* pirre

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Search for potential plant based anti-cancer agents is a high priority in the scientific research in natural product chemistry as a treatment for cancer. Among many reasons, cancer can be a result of an oxidative stress. Use of wide variety of anti-oxidants is considered as the preventive mechanism for the rapid generation of free radicals as well as the reactive oxygen species to minimize the risk of degenerative diseases and cancer. The aim of the current study is to isolate antioxidant compounds from the fruits of *Garcinia quaesita*, which is endemic to Sri Lanka and is commonly used as a food preservative. The studies carried out on the antioxidant activity using DPPH radical scavenging assay, and the cytotoxicity (brine shrimp (*Artimea salina*) lethality assay) of hexane (GH), ethyl acetate (EtOAc, GE), methanol (MeOH, GM) extracts of dried fruits of *G. quaesita* showed that the GH possessed remarkably high anti-oxidant activity with a  $IC_{50}$  of 8.74 ppm compared to that of the positive control ( $\alpha$ -tocopherol,  $IC_{50}$  13.46 ppm) and cytotoxicity with  $LC_{50}$  values of 0.45 ppm compared to that of the positive control ( $K_2Cr_2O_7$   $LC_{50}$  35.78 ppm). However, reports on the higher anti-oxidant activity as well as the cytotoxicity on the hexane extract of *G. quaesita* are absent in the literature and hence the isolation of active compounds was done for the GH.

Medium pressure liquid chromatography (MPLC) was performed for crude GH using solvent combinations of increasing polarity of hexane to ethyl acetate. The resulting column fractions were analyzed using Thin Layer Chromatography (TLC) and based on the TLC pattern, 9 fractions were obtained combining the appropriate separations and then the combined fractions were subjected to the TLC autography with DPPH as the spraying agent. Only the 5th combined fraction showed anti-oxidant activity and it was further separated using flash column chromatography and by observing the TLC patterns, 2 fractions were obtained. These obtained fractions were subjected to the TLC autography with DPPH as the spraying agent where only the 2nd combined fraction showed activity. Two compounds were isolated from the 2<sup>nd</sup> fraction after subjecting to column chromatography, which was tested for anti-oxidant activity. The crystalline compound, which showed strong anti-oxidant activity, was further subjected to the DPPH assay and it showed anti-oxidant activity with an  $IC_{50}$  value of 0.2486 ppm. The FRAP value obtained for the pure compound was 740  $\mu$ mol Fe(II) equiv/g extract compared to that of L-ascorbic acid (2260) which showed correlations of DPPH and FRAP assay with a  $R^2 = 0.971$ . Further, the pure compound showed very high cytotoxicity ( $LC_{50} = 2.0471$ ) comparable to  $K_2Cr_2O_7$ . These data revealed that the pure compound isolated from GH has higher anti-oxidant activity and cytotoxicity, which would be a probable target for the anti-cancer studies. Structure elucidation of the pure compound is currently in progress and future studies will be focused on anticancer activities.