ABSTRACT

In Vitro Study on Anti-Amoebic Activity of Mangosteen (*Garcinia mangostana* L.) Pericarp Extract Against *Entamoeba histolytica*

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Background: *Entamoeba histolytica* is the responsible protozoan that acts as causative agent of human amoebiasis. It is the second leading cause of death worldwide after malaria. Approximately, 50 million people worldwide suffer from invasive amoebic infection annually. Anti-bacterial properties of mangosteen (*Garcinia mangostana* L.) pericarp have been widely studied. However, the anti-amoebic activity of mangosteen pericarp against *Entamoeba histolytica* is still not known. This preliminary study was conducted to evaluate the *in vitro* activity of mangosteen pericarp against *Entamoeba histolytica*.
Methods: This research is an experimental study. Anti-amoebic activity of mangosteen pericarp was assessed using broth dilution method. Different concentration of mangosteen pericarp (400µg/ml; 200µg/ml; 100µg/ml; 80µg/ml; 40µg/ml; 20µg/ml; 10µg/ml; 1µg/ml) were tested against HM-1:IMSS stain *E.histolytica* in 96-well flat-bottom microtiter plate under anaerobic condition. After 24 hours of incubation, the growth of trophozoites in each well was evaluated using spectrophotometer. The percentage viability is calculated. Minimum inhibitory concentration was defined as the lowest concentration of mangosteen (*Garcinia mangostana* L.) pericarp extract inhibits the growth of *Entamoeba histolytica* after 24 hours of incubation. This experiment was repeated three times and triplicate replication.
Result: Anti-amoebic activity and minimum inhibitory concentration (MIC) of mangosteen (*Garcinia mangostana* L.) pericarp extract against *Entamoeba histolytica* cannot be determined in this study because the unstable condition of cells and environmental laboratory factors that cannot be avoided.
Conclusion: This preliminary study shows the anti-amoebic activity and minimum inhibitory concentration (MIC) of mangosteen (*Garcinia mangostana* L.) pericarp extract against *Entamoeba histolytica* cannot be determined. Further research is needed, especially *in vivo* experiment.

Keywords: *Garcinia mangostana* L., anti-amoebic, mangosteen, *Entamoeba histolytica*