

CHAPTER V

CONCLUSIONS

In this investigation, HPLC method could be used to determine tartaric acid that was major organic acid consisting in tamarind pulp. Tartaric acid in tamarind pulp extract, spray-dried tamarind pulp extract, and oil-in-water emulsion containing spray-dried tamarind pulp extract was analyzed by HPLC.

Spray-drying method could be used to prepare spray-dried tamarind pulp extract. It was successful to use acacia as spray-dried carrier at concentration of 10 %w/w. Instrument setting for suitable condition of spray drying was revealed as inlet temperature 110 °C, fan setting level 50. Particles of spray-dried tamarind pulp extract using acacia as carrier were found to be spherical with smooth surface, with aggregation of particles but free flowing. Content of tartaric acid in spray-dried tamarind pulp extract was 7.83 ± 0.13 % w/w.

Physical and chemical stabilities of spray-dried tamarind pulp extract were reported. Percent remaining of tartaric acid was 93.16 percent when kept in clear or light protected vial after accelerated stability study for 6 months. Color of spray-dried tamarind pulp extract was slightly changed due to Maillard reaction.

It was successful to use 3 % w/w of steareth 2 and 2% w/w of steareth 21 as emulsifier in oil-in-water emulsion containing spray-dried tamarind pulp extract.

Whitening efficacy of oil-in-water emulsion containing spray-dried tamarind pulp extract was found at four weeks after using product at forehead.

Moisturizing efficacy of oil-in-water emulsion containing spray-dried tamarind pulp extract was found at first week after using product at forehead and significantly difference from emulsion base in three weeks.

The results from this investigation, recommended to keep spray-dried tamarind pulp extract in tight, bottle at ambient temperature and dry places for avoidance of Maillard reaction of composition in tamarind pulp.