

Abstract

This research aimed to study cosmetic bioactivity of fractionated papaya latex extract. When wounding, the papaya fruit immediately secretes liquid latex and then the liquid form becoming clotted within a few minutes. Therefore, the latex sample collected in this study can be categorized into 4 types liquid first time tapping latex (FL), clotted first time tapping latex (FC), liquid repeated tapping latex (RL) and clotted repeated tapping latex (RC).

The samples were fractionated into 4 molecular weight ranges depend upon the molecular weight cut-off of the membrane pore. The repeated tapping latex showed higher proteolytic activity and protein content than those of the first time tapping. When fractionated, the >30 kDa sample size provided the highest proteolytic activity ranging 372-4,334 units/mL and protein ranging 139-144 mg/mL. The fractionated papaya latex size >10-30 kDa, >3-10 kDa and \leq 3 kDa showed greater radical scavenging activity (IC_{50} ranging 1.11-1.85 mg/mL) than the standard BHT. The papaya latex fractionation of MW >30 kDa was superior absorbability for UVC and UVB to others fractionation. However, all samples of fractionated papaya latex were not able to absorb UVA ray. Most of the papaya latex fractionation exhibited greater tyrosinase inhibitory activity when compared to standard kojic acid (IC_{50} 40.02 μ g/mL) which the lowest IC_{50} value of 25.11 μ g/mL was found in the >30 kDa size sample. SDS-PAGE analysis verified that molecular size of the fractionated papaya latex composition corresponded to the molecular weight cut-off of the used membrane.

Keywords: fractionate/ papaya latex/ cosmetic bioactivity/ molecular weight