

Abstract

Thailand is one of the major banana producers, with hundreds of different cultivars of bananas. Bananas, particularly the *Musa acuminata* "Kluai Hom Thong" variety from Udon Thani, Thailand, are a rich source of RS. However, a significant portion of harvested bananas is discarded due to size issues, presenting an opportunity for value-added processing. This research was used to investigate the impact of autoclave treatment on the resistant starch and physicochemical properties of unpeeled and peeled green banana powder. The methodology involved sample preparation followed by two-cycle autoclaving process at 121 °C for 30 minutes, and 24 hour cooling at 4 °C. Physicochemical analysis including color, water activity, moisture, and resistant starch were analyzed. Data were analyzed using SPSS software to determine statistical significance. Autoclaving significantly decreased lightness (L^*) from 79.08 to 62.02 and increased redness (a^*) from 1.40 to 6.63 and yellowness (b^*) from 11.31 to 20.97 ($p \leq 0.05$). Water activity also increased significantly from 0.25 to 0.34 ($p \leq 0.05$), and moisture content rose from 4.64% to 4.76%, though this change was not statistically significant. Resistant starch content decreased significantly after autoclaving, from 23.22 g/100 g to 21.33 g/100 g ($p \leq 0.05$). Overall, autoclave treatment had a significant effect on the physicochemical properties of banana powder, whereas the presence of peel had minimal influence ($p \geq 0.05$). These findings offer valuable insights for improving banana powder production and expanding its potential in functional food applications.

Keywords: **Autoclaving, Green banana powder, Peel effect, Physicochemical analysis, Resistant starch**