

Assessment of different pretreatment methods to reduce initial microbial load of fresh *Moringa oleifera* Lam. leaves

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The leaves of *Moringa oleifera* Lam. (Moringa) have numerous health benefits due to the rich phyto-nutrients composition and rich content of vital minerals and vitamins. Microbiological safety of fresh Moringa leaves must be ensured to obtain a high-quality leaf powder that is to be used as a raw material in the nutraceutical food industry. This study was aimed to identify a pretreatment method to reduce the microbial load of fresh Moringa leaves. Fresh Moringa leaves were subjected to three different treatments namely soaking in NaCl solutions (1%, 5% and 10%) dipping in H₂O₂ solutions (1% 3% and 5%) for 5 minutes and steam blanching for 30 seconds, 45 seconds and 1 minute. The total plate count (TPC) and Coliform count of Moringa leaf samples were measured before and after treatments. The initial TPC and Coliform count of fresh Moringa leaves were ranged from 1.85×10^4 to 5.75×10^5 CFU/g and 2.15×10^2 to 5.15×10^4 CFU/g respectively. The most efficient methods to reduce both TPC and Coliform counts were dipping in 10% NaCl solution for 30 minutes, dipping in 5% H₂O₂ solution and steam blanching for 45 seconds. TPC reduction percentages for these three pretreatment methods were 93.85%, 99.87% and 99.95% respectively. Coliform reduction percentages for these were 98.21%, 96.16% and 100% respectively. Pretreated leaves were dried to make powder and analyzed for proximate composition, phytochemical properties, color properties and functional properties. According to microbiological tests, steam blanching for 45 seconds was identified as the most effective method to reduce both TPC and Coliform count of fresh Moringa leaves.

Keywords: moringa leaves, microbial load, pretreatments and steam blanching

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