

## Physicochemical Properties of Low Viscosity Banana Juice

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**Abstract :** Banana (*Musa acuminata*) is one of the most largely consumed fruits in the world. It is an excellent source of potassium, antioxidants, and fiber. In East and Central African countries, banana is used to produce low viscosity clear juice using traditional kneading of ripe banana and grasses until juice oozes out. Recently, an improved method involving blending of the banana followed by pressing to separate the juice from pulp has been achieved. This study assessed the physicochemical properties of banana juice prior to product formulation. Two different banana juices from two cultivars: Pisang awak and Mbile an East African Highland Banana (EAHB) were evaluated for viscosity, sugars (sucrose, fructose, and glucose), organic acids (malic, citric and succinic acids) and minerals using the HPLC and AAS. Juice extracted from Pisang awak had a viscosity of  $3.43 \times 10^{-5} \text{ N.m}^{-2} \text{ s}$  while EAHB juice had a viscosity of  $6.02 \times 10^{-5} \text{ N.m}^{-2} \text{ s}$ . Sugar concentrations varied with banana place of origin. Pisang awak juice had a higher dissolved solids value of 24-28° Brix then EAHB, whose value was 18-24° Brix. Juice viscosity was 3.5-5.3 mPa.s, specific gravity was 1.0-1.1, and pH was 4.3-4.8. The average concentration of sucrose, fructose, and glucose was 1.10 g/L, 70 g/L 70 g/l, respectively for Pisang awak from lower altitude compared to 45-200 g/L 45-120 g/l and 45-120 g/L, respectively for Pisang awak from higher altitude. On the other hand, EAHB from North East Tanzania produced juice corresponding concentrations of 45 g/L, 56 g/L, and 55 g/L, respectively while another EAHB from North West of Tanzania had sucrose and fructose and glucose concentration of 155 g/L and 145 g/L. respectively. Dominant acids were malic and citric acids for pisang awak but succinic for EAHB. Dominant minerals in all cultivars were potassium 2.7-3.1 g/L followed by magnesium 0.6-2 g/L.

**Keywords :** banana juice, sugar content, acids, minerals, quality analysis

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