

STUDIES ON SRI LANKAN RICE VARIETIES  
PART IV - RHEOLOGICAL AND GRINDING  
PROPERTIES OF FIFTEEN VARIETIES

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Fifteen locally developed rice varieties whose chemical composition was reported previously were investigated for their grinding properties, rheological behaviour and gelling characteristics. Grinding under different conditions and determination of median particle size, have enabled to distinguish hard and soft rice types among these varieties. The gel strengths of the different varieties showed that the types of rice available in Sri Lanka were mostly medium gel types with a few showing hard gel consistency.

The gelatinization temperature, determined by Brabender amylography, showed that except for one variety which had low gelatinization temperature ( $68.5^{\circ}$ ), all the other varieties had intermediate and high gelatinization temperatures ( $71.25 - 81^{\circ}$  C). The amylograph peak viscosities showed a wide variation among the different varieties and dependence on type of grinding. The peak viscosities of the flour obtained by grinding in the centrifugal mill was always higher, as compared with the flour obtained by grinding using the cross-beater mill.

The median particle size ( $PS_{50}$  value) of the flour obtained through cross-beater mill ranged between 160-270 microns as compared with the  $PS_{50}$  values of flour obtained through the centrifugal mill (120-160 microns). Therefore, this indicates that the peak viscosity is dependent on particle size.

Trials for preparation of string hoppers were carried out. It was observed that varieties with high peak viscosity yielded good string hoppers.