

**CHARACTERIZATION OF TARO STARCHES PREPARED BY DUAL CHEMICAL  
MODIFICATION USING ETHERIFICATION AND CROSS-LINKING AND THEIR  
EFFECT ON PROPERTIES OF SOUP**

**ABSTRACT**

Starch was isolated from Taro (*Colocasia esculenta* var. *antiquorum*), locally known as “Panchamukhi Kochu” and was chemically modified by etherification and cross-linking and their combinations to obtain dual modified taro starches. Taro tubers (*Colocasia esculenta* var. *antiquorum*) were purchased from a local agricultural farm near Tezpur University, Napaam, Tezpur, Sonitpur. The effects of modification upon the physicochemical and functional properties were investigated. The yield of starch was 14%. Hydroxypropylation improved the swelling power from 13.79g/g in native to 19.63g/g and solubility from 20.91% in native to 45.72% at highest concentration levels at 90°C. On the other hand solubility and swelling power at highest concentration decreased upon cross-linking. Paste clarity increases with highest concentration level of etherification from 22.57%T in native to 41.2%T, but it was decreased to 11.33%T at highest concentration level of cross-linking. Hydroxypropylation reduced percentage syneresis proving a better freeze-thaw stability where as cross-linking increased the percentage syneresis. Among the dual modified taro starches hydroxypropylated cross-linked starches showed better freeze-thaw stability than cross-linked etherified starches. Etherification also improved percent transmittance significantly while cross-linking decreased it. The final viscosity of the modified starches increased than the native taro starch. The consistency and firmness of all the modified starches found higher than the native starch. Lightness of color of the modified starch powders increased as a result of modification. The soup prepared using modified starches showed higher values of texture parameters in terms of firmness and consistency than that prepared from native starch.

Keywords: Etherification, Cross-linking, Dual modification, solubility, swelling