Bambarra groundnut starch was fractionated into amylose and amylopectin fractions, and chemical modifications, through oxidation and acetylation, was applied to the amylose fraction. Percentage yield of amylose and amylopectin were 75% and 11% respectively. Proximate analysis revealed that percentage protein, ash, crude fibre and crude fat were below 1%. Swelling capacity and solubility of all the samples increased with increasing temperature. Water and oil absorption capacity revealed that hydrophobic tendency was greater than hydrophilic potentials. Gel forming capacity increased with increase in concentration of the samples and least gelation concentration was minimal in amylopectin fraction. Initial pasting temperature of native amylose reduced from 70oC to 60oC and 65oC following oxidation and acetylation, respectively. Among the samples, highest pasting temperature was recorded in native amylopectin and values for peak viscosity during heating (Pv), hot paste viscosity at 95oC (Hv), viscosity after 30 min holding at 95oC (Hv30), cold paste viscosity (Cv), set back (SB) and breakdown (BD) were maximal in native amylose.

**Key words:** Bambarra groundnut, amylose, amylopectin, modifications.

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