

## Abstract

The fracture properties of kaolin-based refractories prepared using plant-derived binders from okra and ‘mrenda’ have been investigated and compared. It was observed that the MOR of fired samples improved from  $37.5 \pm 0.1$  MPa (for binder-free samples) to  $69.6 \pm 0.1$  MPa, and to  $120.0 \pm 0.1$  MPa for okra- and ‘mrenda’-plasticized samples, respectively, while the fracture toughness increased from  $3.9 \pm 0.1$  MPa (for binder-free samples) to  $5.6 \pm 0.1$  and  $5.7 \pm 0.1$  MPa for okra and ‘mrenda’-plasticized samples, respectively. It is concluded that the use of organic binders enhances the reliability and service life of kaolin refractories used in thermally fluctuating environments.