Dynamic simulation on the recovery of 2-acetyl pyrroline (2-ap) in a packed bed column using rice husk char as solid adsorbent

ABSTRACT

Fragrant rice is known to contain the aromatic compound of 2-Acetyl Pyrroline (2-AP). This compound has been known as a major compound that gives fragrant characteristics in rice. However, this compound is volatile and easily escapes from the rice upon the drying process. In order to recover the release of 2-AP from rice upon drying, a packed bed adsorption system is employed using treated agricultural waste as a solid adsorbent. The experimental adsorption study in a batch mode for 2-AP onto treated rice husk char (TRHC) was used as a case study for this present work. Influences of three operational parameters towards the dynamic adsorption of 2-AP onto TRHC in a packed bed column were investigated by measuring the breakthrough and saturation time and mass transfer zone. This study suggests the possibility of treated agricultural waste as an alternative to capture the lost 2-AP during the paddy drying process.