



Contribution ID: 335 Contribution code: **S1 Physics Innovation**

Type: **Poster Presentation**

## Development of food packaging materials from rice straw waste and sugarcane residue by hot pressing

The increase in demand for renewable materials and strict regulations on organic waste are pushing the food packaging industry toward more sustainable alternatives. Agricultural waste, namely, rice straw and sugarcane residue, is one of the promising replacements for the traditional synthetic polymer in food packaging applications because of its biodegradability, low cost, and low carbon emissions. Herein, we present the procedure to develop food packaging materials from rice straw and sugarcane residue using the hot-pressing technique. The resulting materials were then characterized by water absorption, material density, tensile strength, and the outgassing of CO<sub>2</sub>. Rice straw and sugarcane residues produce the highest-density materials when pressed at 200°C for 200 s and 230°C for 230 s, respectively. The outgassing of CO<sub>2</sub> in both rice straw and sugarcane waste was substantially lower than that of the traditional synthetic polymer-based food packaging.

**Primary authors:** Mr JITTABUT, Pongsak (Nakhon Ratchasima Rajabhat University); Dr BUABTHONG, Pakpoom (Nakhon Ratchasima Rajabhat University)

**Co-authors:** Ms PORNMANEE, Jularat (Nakhon Ratchasima Rajabhat University); Ms CHUEAKAMCHAN, Benyapa (Nakhon Ratchasima Rajabhat University)

**Presenter:** Dr BUABTHONG, Pakpoom (Nakhon Ratchasima Rajabhat University)

**Session Classification:** Poster: S1 Physics innovation

**Track Classification:** Physics Innovation