

## **An initial investigation on microwaves reflection and transmission coefficients of oil palm empty fruit bunch biocomposites incorporated with nickel zinc ferrite**

### **ABSTRACT**

In this initial investigation, oil palm empty fruit bunch (OPEFB) biocomposites incorporated with nickel zinc ferrite (NZFO) were prepared via heat blending technique followed by a compression molding technique, the percentages of NZFO were varied from 2.5 to 12.5%. All microwave measurements were carried out by means of Vector Network Analyzer (VNA) in the frequency ranges between 8 and 12 GHz. The attenuation measurement software was developed to retrieve data from VNA through a Visual Engineering Environment platform. The simulated and measured results showed that the biocomposites with a higher percentage of NZFO would have higher values of reflection coefficient and lower values of the transmission coefficient. On the contrary, the biocomposites with a lower percentage of NZFO have lower values of reflection coefficient and higher values of the transmission coefficient. In conclusion, the percentage of NZFO has significantly influenced the values of microwaves reflection and transmission coefficients of the OPEFB biocomposites.

**Keyword:** Microwave transmission; Microwave reflection; Oil palm empty fruit bunch; Biocomposite; Nickel zinc ferrite