

Summary Article (Dwi Aji Nugroho) on 4<sup>th</sup> ASEAN and Plus Tokushima Joint International Conference (1-3 December 2017)

**Background :** Dental composite resins are made from anorganic filler (mainly glass). It has major disadvantages on the production process, such as its abrasive properties, pollutant, non-renewable materials and high energy consumption during manufacturing. Therefore, alternative filler material was needed, especially organic material. The most potential organic material is natural fiber such as sisal. This study has manufactured composite resins with sisal that sized nano as their filler and we called composite nanosisal

**Objective :** This study aimed to determine the influence of amount of filler on the fractur resistance of nanosisal composite resin.

**Materials and Methods :** This research used 20 sample. Sample sized 2 mm x 2mm x 25 mm (ISO-4049). The samples were divided into four groups with five samples each. Group A used filler with volume 60%, group B 65 %, group C 70 % and group D used nanofiller composite (3M ESPE, Z350). The sample was tested for fracture resistance using a universal testing machine. Non-parametric test of Kruskal Wallis was used for statistical analysis.

**Result :** Composite resin with 60% filler volume has an average fracture resistance 28,61 MPa, 65% was 11,77 MPa, 70% was 11,56 MPa and 3M ESPE-Z350 was 35,36 MPa. Kruskal-Wallis test showed no significant difference ( $p > 0.05$ ).

**Conclusion :** There was no effect of amount of filler on the fracture resistance of composite nanosisal. Composite 3M ESPE-Z350 was the highest of fracture resistance. Filler nanosisal 60% was optimum level of composite nanosisal.