ABSTRACT

Pierre Robinson Syndrome (PRS) is a developmental disorder of the lower jaw that occurs since the fetus is in the womb. This syndrome affects the development of the palate in the mouth which causes respiratory obstruction and makes it difficult to swallow food. Diagnosis and treatment planning of PRS require accurate 3D images of patients with PRS. The purpose of this study was to create an anatomical model of the PRS mandible using the 3D printing method as an anatomical model of the mandible to make it easier for medical personnel to determine the next medical stage. The method used uses a 3D printing machine as a medium for printing the mandible. The results of the analysis of the characteristics of the materials used, namely PLA, ABS, TPU, showed that in the tensile test PLA was superior with a stress of 17.1 MPa and a strain of 9.9 m / mm. The bending test showed that PLA had a stress value of 56.73 and a strain of 17.63. The TPU impact test showed an absorbed energy value of 1.77450J and a toughness of 42.45kJ / m2 with a type of failure being brittle. Based on the characteristic test of the three materials, PLA is superior to the other 2 materials in strength and elasticity, making it a better choice of material for making PRS mandibular anatomical models for medical team learning materials.

***Keywords**: 3D Printing, Acrylonitrile Butadiene Styrene, Pierre Robinson Syndrome, Polyactic Acid, , Thermoplastik Polyurethane*