

***DIFFERENCES IN BLOOD ADSORPTION SPEED OF TYPE O BLOOD IN CARBONATE APATITE-COLLAGEN SCAFFOLD WITHOUT REHYDRATION AND REHYDRATION WITH SALINE***

***ABSTRACT***

***Background:*** Bone tissue engineering is a tissue engineering with the aim of repairing and maintaining the function of damaged or lost tissue by physiological, pathological, and mechanical condition or trauma by substitution or replacement of biological tissue or by tissue reconstruction. This tissue engineering involves scaffold bone graft. It is important for the scaffold to have an appropriate micro structure to facilitate stem cells performing the process of adhesion, proliferation, and differentiation that will produce an expected tissue. Carbonate apatite-collagen scaffold has structural and mechanical properties suitable for use as bone tissue engineering material. Blood is needed for the transport of oxygen and nutrients necessary for the maintenance of bones. Saline is used to provide physiological environmental conditions for wounds. ***Purpose:*** To determine the difference of type O blood adsorption rate on carbonate apatite-collagen scaffold with and without saline rehydration. ***Methods:*** 14 carbonate apatite-collagen scaffold samples with a size 2x5 mm which are stacked 14 mm high, were divided into two groups, 7 samples for scaffolds without saline rehydration, 7 samples for scaffolds with saline rehydration. The samples per group were submerged in 75 ml of blood. The measurement of blood adsorption speed in each group was seen for 2 minutes. ***Result:*** The result of data analysis using Mann-Whitney found a significance value of less than 0.05 (Sig<0.05). This show the significant difference between treatment groups. ***Conclusion:*** There is a difference in the speed of type O blood adsorption in carbonate apatite-collagen scaffold with and without saline rehydration.

***Keywords:*** carbonate apatite-collagen scaffold, adsorption speed, type O blood, saline.