

**HALAL DETERMINATION OF
BOVINE DEMINERALIZED BONE MATRIX**

ABSTRACT

Background Demineralized Bone Matrix (DBM) is a biomaterial product derived from long bones of bovine, functioning as a graft in the process of new bone formation. DBM contains 93% collagen type I, 5% protein growth factor and 2% remaining osteocyte cells. Collagen acts as an extra cellular matrix that binds to osteoblasts. One of the proteins contained in DBM is Bone Morphogenetic Protein (BMP). This protein triggers DBM mineralization to form new bone. the majority of issues related to halal are related to the existence of swine-based biomaterials. **Purpose** Halal analysis methods must be developed to ensure the authentication of raw materials for products, finished products and product counterfeiting. Analysis and authentication of products is urgently needed along with the emergence of health problems and sensitivity among consumers. Requirements for animal-based products to be halal, animal types must be considered and proven that there is no contamination with illicit substances during the production process of DBM is widely used in bone defect therapy in humans, because it comes from mammals, it is necessary for halal tests to ensure that DBM does not originate from swines. **Method** The DBM test uses a biomolecular examination that is designed with two primers for the analysis of mitochondrial DNA of osteocyte cells. DNA isolation in DBM were amplified using PCR with specific primers of Cytochrome B gene markers in bovine mitochondria of 315 basepairs (bp) and Cytochrome B gene markers of swine mitochondria of 216 bp. **Result** DBM graft showed positive results on bovine cytochrome B genes and negative results on swine cytochrome B genes. **Conclusion** DBM graft produced by Dr. Soetomo Hospital Tissue Bank is a halal biomaterial and not contaminated by swines

Keywords : Demineralized Bone Matrix, Halal, Bovine