Abstract

Gypsum is a material used in medical dentistry, as dental casting material, dental model, base for dental model and investment material. The gypsum used in medical dentistry is Hydrated Calcium Sulfate (CaSO₄ – 2H₂O). Puger district at Jember regency is well-known as a mining area that produces abundant amount of gypsum. This research was aimed to analyze the calcium and sulfur composition of the gypsum from Puger district as an alternative material in dental practice. The total samples were 48, and divided into four groups. The first group contained of gypsum mined from low level land. The second group was the gypsum mined from middle level land, and the third group was the gypsum mined from upper level land. While the fourth group was the gypsum commonly used in dentistry. Calcium composition was analyzed using Atomic Absorption Spectrophotometer (AAS) with wavelength of 285 nm, while sulfur composition analyzed using spectrophotometer 21 D with 432 nm wavelength. The result showed that compositions of calcium and sulfur of the gypsum groups was significantly different (p < 0.05). In conclusion, Gypsum at Puger district has adequate calcium (Ca) and sulfur (S) composition to be used as an alternative gypsum in medical dentistry.

Key words: gypsum, calcium, sulfur