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**Conference Abstract****Suitable shielding material for external beam therapy**D. M. B. Y. Dissanayake<sup>1</sup>, T. Pathmathas<sup>1</sup>, A. Ramalingam<sup>2</sup><sup>1</sup> Department of Physics, Faculty of Science, University of Jaffna, Jaffna 40000, Sri Lanka<sup>2</sup> Cancer Unit, Teaching Hospital, Jaffna, Sri Lanka.**Abstract**

In radiological procedures radiation shielding apparel must protect the patients and medical personnel from unnecessary exposures. Primarily conventional radiation shielding apparel is constructed from lead impregnated sheet materials that have issues with lead toxicity, user inconvenience and are a source of environmental pollution.

This research was carried out to find a suitable material for constructing shielding apparel used in high energy photon beams. In this study, for the primary photon beam of energy 6 MV, effective linear attenuation coefficients of terry cotton fabrics coated with 4.5 g/cm<sup>3</sup> density barium sulphate (BaSO<sub>4</sub>), 4.29 g/cm<sup>3</sup> density barium carbonate (BaCO<sub>3</sub>) and 3.86 g/cm<sup>3</sup> density barium chloride (BaCl<sub>2</sub>) produced by impregnation and coating method, and kept between compressible frames were estimated [1]. The first step of the radiological measurements revealed that BaSO<sub>4</sub> significantly more attenuated than BaCO<sub>3</sub> and BaCl<sub>2</sub>, and the calculated values of the effective linear attenuation coefficient of combined terry cotton fabric and BaSO<sub>4</sub> were 3.66 m<sup>-1</sup> and 5.21 m<sup>-1</sup> for 10 cm × 10 cm and 5 cm × 5 cm field size, respectively. It was concluded that the Barium Sulphate (BaSO<sub>4</sub>) coated terry cotton fabric used in this study could be utilized in the production of lab coats and other protective apparels for personnel who are routinely exposed to radioactive settings.

**Keywords:** Linear attenuation coefficients, Terry cotton fabrics, BaSO<sub>4</sub>**Reference**[1] Şemsettin Kiliñarslan et al., Glob. J. Med. Res., (2018), **18** (01)