

## RADIOACTIVE PROPERTIES OF TWO RARE GEMSTONES IN SRI LANKA

*Wijesinghe<sup>1\*</sup> W.A.D.T.L., Jayasundara<sup>1</sup> J.M.C.K., Malaviarachchi<sup>1</sup> S.P.K., Francis<sup>1</sup> Prashan  
<sup>1</sup>Gem and Jewellery Research and Training Institute, Kaduwela, Sri Lanka  
Department of Geology, University of Peradeniya, Sri Lanka  
tilinalakmal.gjrti@gmail.com*

Occurrence of many rare gem minerals in gem fields of Sri Lanka provides an opportunity to study their physio-chemical characteristics. In the present study we have studied the radioactivity of two (02) rare gem stones from Okkampitiya area.

Natural Kornerupine sample contains radioactive nuclides of Thorium and Uranium series such as Th(<sup>212</sup>Pb), Th(<sup>218</sup>As), U(<sup>214</sup>Pb), Th(<sup>28</sup>Ac), U(<sup>214</sup>Pb), Th(<sup>208</sup>Tl), U(<sup>214</sup>Bi), Th(<sup>228</sup>Ac) and Th(<sup>208</sup>Tl). Further radioactivity of the natural Kornerupine was found as  $1.55 \times 10^3$  Bq and dose rate is around  $105.95 \mu\text{Svh}^{-1}$ . When compared to the hazardous level, radioactivity of the Kornerupine is not harmful to human life.

Ekanite is a natural radioactive rare gemstone. It shows radioactivity value around  $2.155 \times 10^5$  Bq and dose rate around  $1.47 \times 10^4 \mu\text{Svh}^{-1}$ . These values are higher than the hazardous level and may be harmful to humans.

**Keywords:** *rare gemstones, kornerupine, ekanite*