

<p>P-278</p>	<p>BETA DOSIMETRY IN TEETH FROM SR-90 EXPOSED SUBJECTS FATTIBENE P¹, DE COSTE V¹, ONORI S¹, VERONESE I², GIUSSANI A², CANTONE MC², SHISHKINA E³ (1) Istituto Superiore di Sanità and INFN, Viale Regina Elena 299, Roma, Italy (2) Università di Milano, Dipartimento di Fisica and INFN, Via Celoria 16, Milano, Italy (3) URCRM, Medgorodok., Chelyabinsk, Russia</p>
<p>Presentation preference: Poster Only</p> <p>Major scientific thematic areas: TA3 - Dosimetry and Instrumentation</p>	<p>Tooth enamel is a well recognized dosimeter for retrospective dose reconstruction of individuals accidentally exposed to ionizing radiation. The measurements of the absorbed dose in tooth enamel is conventionally carried out with the Electron Paramagnetic Resonance technique. Tooth enamel is sensitive to all kind of ionizing radiation. Its response to photons has been widely investigated. For application to contaminated teeth with ⁹⁰Sr, one of the most common osteotropic radionuclides, the effectiveness of tooth enamel response to the β spectrum needs be evaluated. The response function to ⁹⁰Sr of the EPR/tooth enamel systems, its linearity and reproducibility have been investigated under a controlled geometry, and the results will be presented and compared to those obtained with photons.</p> <p>When the subject has been exposed to both external and internal radiation, a combined EPR/TL method can be used to distinguish the internal from the external contribution to the cumulative dose in tooth (Gösku et al., 2002; Veronese et al. 2004, Shishkina et al. 2005). The TL measurement, performed putting thin •-Al₂O₃:C dosimeters at contact with the tooth surfaces, enables to estimate the beta dose rate due to the radionuclides present in tooth. The combination of this information with that coming from EPR allows, under specific assumptions, to evaluate separately the internal and external contribution to the tooth dose.</p> <p>In a previous work (Veronese et al., 2004) the dose in enamel measured by EPR in a tooth contaminated with ⁹⁰Sr of a Techa River resident was compared to the dose rate measured by TLDs. The test has been extended to a larger number of ⁹⁰Sr contaminated teeth. EPR measurements have been also performed in other portions of the teeth, i.e. tooth dentin and root. The correlation between the results, obtained from EPR and TLD measurements, and the evaluation of the relative proportion of internal and external dose are presented and discussed.</p> <p>Göksu, H.Y., Semiochkina, N., Shiskina, E.A., Wieser, A., El-Faramawy, N., Degteva, M., Jacob, P., Ivanov, D.V., Rad. Prot. Dosim., 101: 505-514 (2002).</p> <p>I.Veronese, P.Fattibene, M.C.Cantone, V.De Coste, N. El-Faramawy, A.Giussani, Y.Göksu, M.Martini, S.Onori, D.Ripamonti, E.A.Shishkina, A.Wieser, IRPA 11 Conference, Madrid, 24-28 May 2004.</p> <p>E. Shishkina, El-Faramawy, N., Göksu, H.Y., Semiochkina, N., Radiat. Res. 163 (2005)</p>