

## Cosmic Background Reduction in the Radiocarbon Measurements by Liquid Scintillation Spectrometry

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**Abstract :** Guard detector efficiency, cosmic background, and its variation were determined using ultra low-level liquid scintillation spectrometer Quantulus 1220, equipped with an anti-Compton guard detector, in the surface laboratory at the University of Novi Sad, Serbia. Atmospheric pressure variation has an observable effect on the anti-Compton guard detector count rate, and the cosmic muon flux is lower during a high-pressure period. Also, the guard detector Compton continuum provides a good view of the level of gamma radiation in the laboratory environment. The efficiency of the guard detector in the channel interval from 750 to 1024 was assessed to 93.45%; efficiency in the entire window (channels 1 to 1024) was 75.23%, which is in good agreement with literature data.

**Keywords :** cosmic radiation, background reduction, liquid scintillation counting, guard detector efficiency

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