

RESIDENTIAL RADON AND THE RISK OF MALIGNITY: THE CASE OF LAGES PINTADAS CITY, NORTHEASTERN BRAZIL

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The Lages Pintadas city (Northeastern-Brazil) has presented an unusually high incidence of different cancer types in contrast to other neighboring municipalities. Metamorphosed rocks of granitic composition and pegmatite form this region. We make a pilot research aims to provide the Lages Pintadas city actions in the environmental and public health field as regards the distribution of the carcinogenic agent radon and decay products in urban and rural areas. Residential radon is the most important environmental risk factor for lung cancer. The Indoor radon measurement was making with long-term passive radon detectors (E-PERM® by RADELEC INC.), Gross gamma radiation with RS-125 spectrometer with NaI crystal (TERRAPLUS). We present the results from 110 Long-term passive radon detectors installed in 100 dwellings (mainly-bedrooms) in Lages Pintadas city. The survey was performed during two periods of five months on the dry season (December-April). All dwelling are without ceilings and have ceramic roofs, while the floor is tiled or cemented. The choice of different dwellings was random. For the two periods, the GM for Indoor-Radon were 358 Bq/m³ (SD: 823; range 20-3723; MED: 376). In the first measured period the data range: 15-4055 Bq/m³ (MED: 368; GM: 381; SD: 940) but in the second measured period, the data are less scattered and range: 20-36391 Bq/m³ (MED: 323; GM: 294; SD: 777). Consequently, all dwellings exceed the WHO action level of 100 Bq/m³ for indoor radon. The gamma radiation level was also checked in each dwelling (range; 16-109 nGray/h; MED: 83; GM: 139; SD: 17), this data was considered normal. Our results show that for the Lages Pintadas city the indoor-radon are high and further and more extensive research is needed.

Keywords: residential radon, natural radioactivity, northeastern Brazil