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Derivation of transfer parameters for use within the ERICA Tool and the default concentration ratios for terrestrial biota.
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An ability to predict radionuclide activity concentrations in biota is a requirement of any method assessing the exposure of biota to ionising radiation. Within the ERICA Tool fresh weight whole-body activity concentrations in organisms are estimated using concentration ratios (the ratio of the activity concentration in the organism to the activity concentration in an environmental media). This paper describes the methodology used to derive the default terrestrial ecosystem concentration ratio database available within the ERICA Tool and provides details of the provenance of each value for terrestrial reference organisms. As the ERICA Tool considers 13 terrestrial reference organisms and the radioisotopes of 31 elements, a total of 403 concentration ratios were required for terrestrial reference organisms. Of these, 129 could be derived from literature review. The approaches taken for selecting the remaining values are described. These included, for example, assuming values for similar reference organisms and/or biogeochemically similar elements, and various simple modelling approaches.

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