Studi pengaruh spesiasi terhadap bioakumulasi 242Pu dan 243Am melalui jalur air laut oleh siput macan (Babylonia spirata di perairan Teluk Jakarta) = Study of the effect of chemical speciation on the bioaccumulation of 242Pu and 243Am through seawater pathway by babylonia spirata from Jakarta Bay

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Abstrak

Telah dilakukan penelitian bioakumulasi plutonium dan americium oleh Babylonia spirata dari Teluk Jakarta menggunakan perunut 242Pu dan 243Am. Eksperimen akuaria menggunakan dua jenis tingkat oksidasi. dan. dengan tiga kali pengulangan. Percobaan dilakukan melalui. tahapan, yaitu akumulasi dan depurasi. Bioavailabilitas 242Pu Pu3 dan Pu4 dan 243Am Am3 dan Am4 di air laut pada Babylonia spirata telah dipelajari. Parameter biokinetika yang diteliti meliputi faktor konsentrasi CF, konstanta laju pengambilan ku, konstanta laju pelepasan ke, faktor biokonsentrasi BCF, dan waktu paruh biologis tb1/2. Spesiasi 242Pu Pu3 dan Pu4 dan 243Am Am3 dan Am4 menunjukkan pengaruh yang berbeda terhadap kemampuan B. spirata mengakumulasi Pu dan Am. Bentuk Pu4 dan Am3 terakumulasi lebih tinggi dan tertahan lebih lama di kompartemen tubuh B. spirata. Radionuklida 242Pu dan 243Am terdistribusi paling tinggi pada cangkang dan sisa organ, dan terdistribusi paling rendah pada insang dan ginjal B. spirata.
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The research of bioaccumulation Plutonium and Americium of Babylonia spirata from Jakarta Bay using 242Pu and 243Am radiotracers has been conducted. The aquaria experiments were applied by two oxidation states of Pu and Am speciation with three replications. The experiment was carried out by. steps, such as uptake and depuration. The bioavailability of 242Pu and 243Am in the III and IV oxidation states through sea water pathway has been studied for Babylonia spirata. Biokinetics parameters, such as concentration factors CFss, uptake rate constants ku, elimination rate constants ke, bioconcentration factors BCF, and biological half life tb1 2, were investigated. Speciation of 242Pu Pu3 dan Pu4 dan 243Am Am3 dan Am4 affected the ability of B. spirata to accumulates plutonium and americium. The research shows that Pu4 and Am3 are potentially accumulated in greater value than Pu3 and Am4 by B. spirata, in which Pu and Am are more rapidly distributed and retained longer in shells and remainders, and shorter in gills and kidneys.