

Peculiarities of Elemental Accumulation in Molluscs from the Coastal Zones of South Africa

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Molluscs accumulated several trace elements in high amounts in correspondence with the environmental ratios. The neutron activation analysis was used as the main technique for determination of 40 elements in soft tissues of 90 natural molluscs from 6 stations along the South African coast. The procedure of NAA was carried out at the REGATA facility of the reactor IBR-2, in FLNP, JINR. For comparative analysis, the ratios of key elements-markers of anthropogenic and terrigenous component were estimated in the model zone of Saldanha Bay.

The model stations with constant anthropogenic impact of the routine coastal city emissions were chosen and corresponded to two different types of water areas in region of Saldanha Bay (which were studied earlier). The obtained concentrations in all other stations were compared with values from model stations to demonstrate the level of anthropogenic influence at the current conditions.

Preliminary results demonstrated that such elements as Ti, Cr and others (V, Sc, Th etc), which were taken as a markers of terrigenous matter reached high values at the almost all stations along African coast in comparison with model polluted station at the Saldanha Bay. But elements which can be used as markers of matter of anthropogenic origin (Zn, Se, As, Br) reached higher or close level of values at the Hout Bay and Waterfront stations in the Cape Town water area. The samples from Durban contain the highest level of terrigenous component, which was indicated by such elements as Ti, Cr, Fe, etc. This trait was characteristic of other coastal station but in a smaller scale. This can be reason for increasing of concentrations of several elements, which were connected with resuspended terrigenous particles accumulated by molluscs in and after storm seasons.

The study will be proceed in the frame of the “Mussel Watch” project which expanded to new areas of the African coast, and other species of molluscs.