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Total assemblages of benthic foraminifera from a mixed siliciclastic/carbonate inner shelf; preliminary results from the bays of Soline and Nin (Adriatic Sea, Croatia)

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Eastern Adriatic shelf is mixed siliciclastic/carbonate area with a great proportion of carbonate biogenous production. This study presents analysis and comparison of total benthic foraminiferal assemblages (their composition, diversity and distribution) in surface sediments from two Eastern Adriatic shallow water bays (Soline and Nin Bay), sampled seasonally from 2006 to 2008. In order to characterize the carbonate sediment production, 62 samples along the bathymetric profiles (from 2 to 20 m) were collected by scuba diving with short PVC corers. Granulometrical analysis was done using method of wet sieving. Statistical analyses (cluster analysis, PCA) were performed using Past program.

The most abundant biogenous components in different sediments from Soline Bay (muddy sandy gravel and mud) are foraminifera, followed by fragments of mollusks, gastropods, bryozoans and sea urchins. Foraminiferal assemblages are high diversified as confirmed by Shannon-Wiener index varying from 2.14 to 3.39, Fisher α index from 5.74 to 16.30 and Equitability from 0.32 to 0.72. The shallowest part of the bay is covered with the sand, consisted of high proportion of siliciclastic component and impoverished in biogenous remnants. Foraminiferal assemblages have low diversity (Shannon-Wiener index 1.36, Fisher α index 2.31 and Equitability 0.32). Throughout Nin Bay, sediments (classified as sand, muddy sand and mud) are consisted of various biogenic remnants. Foraminiferal assemblages have high biodiversity, with Shannon-Wiener index varying from 2.51 to 3.20, α-Fisher index from 7.84 to 12.64 and Equitability from 0.37 to 0.77.

Statistical analyses (cluster analysis and PCA) grouped foraminifera in two major assemblages, related to sediment type. On sandy and gravely substrates, assemblage is dominated by epifaunal genera and species: Quinqueloculina sp. (6-20%), Elphidium sp. (5-16%), Neoconorbina terquemi (6-10 %) and Asterigerinata mamilla (5-7%). Infaunal species, Ammonia beccarii (5-16%), Ammonia inflata (5-36%), Ammonia tepida (6-38%) and genus Haynesina sp. (6-31%) dominate assemblages in muddy sediments. The only reworked species Aubignyna planidorso is found in the shallowest part of Soline Bay, making 20 to 65% of the assemblage.