



Water-soluble organic nitrogen in atmospheric fine and coarse particles in Eastern Mediterranean

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The study of Nitrogen compounds in atmospheric particles have been the focus of considerable recent research as nitrogen is an important source of fixed nitrogen to terrestrial and aquatic ecosystems. Organic nitrogen in aerosol phase is linked either to gas to particle conversion of gaseous precursors like organic nitrates or from species existing in aerosol phase like amino acids, alkylamines and humic like substances.

Earlier experimental results suggest that N deposition could play an important role in nitrogen cycle, especially in an oligotrophic environment such as Eastern Mediterranean sea, affecting the seawater productivity. This work presents the results of N speciation in aerosol size segregated samples collected in the E. Mediterranean during two years period.

Aerosols samples were collected in two fractions: fine mode ($d < 1.6 \mu\text{m}$) and coarse mode ($d > 1.6 \mu\text{m}$). The average WSON concentration in fine mode was found to be much higher than in the coarse mode, accounting for 34% and 18% in fine and coarse mode respectively. This result suggests that antropogenic activities significantly influence the presence of organic nitrogenous compounds in the atmosphere.

Additionally, WSOC has been determined in the same aerosol samples as the C:N ratio of organic matter plays an important role in determining the assimilation pathways and the mineralization products formed during microbial uptake of ON (Antia et al., 1991; Bushaw et al., 1996). The C:N ratio is also used as an indicator for the biological availability of N-containing organic matter (Zhang et al., 2001). In this study the C:N ratio appears to be smaller in fine mode compared to the coarse one. These results will be presented and their implications for the sources of ON will be thoroughly

discussed.