THE *BIOPRINT PILOT PROJECT*: CILIATED PROTOZOA COMMUNITIES AS A TOOL TO ASSESS SOIL QUALITY IN AGROECOSYSTEMS AND NATURAL SITES OF MARCHE REGION (ITALY)

ANTONIETTA, LA TERZA[1] (ANTONIETTA.LATERZA@UNICAM.IT); SANTOSH, KUMAR[2]; DAISY, BHARTI[1]; SILVIA, MARINSALTI[1]; EMILIO, ISOM[1].

[1]School of Biosciences and Veterinary Medicine, Animal and Molecular Ecology Unit, University of Camerino, Italy
[2]Universität Salzburg, FB Organismische Biologie, Austria

In the recent years the potential of ciliated protozoa, as indicators of soil quality has been highlighted by several studies. Thus, in the framework of the *BioPrint Pilot Project* and for the first time in Italy, we have investigated the biodiversity and the community structure of soil ciliates from agroecosystems and natural sites of Marche Region. The aims of our study were: i) to evaluate the capacity of ciliates to discriminate between different types of land uses; and ii) farming management practices; iii) to assess relationships among ciliate community and abiotic parameters. Soil samples were collected twice from 10 sites (5 natural sites: FORest; and 5 arable field: 3 ORGanic and 2 CONventional). Ciliate communities were studied by means of qualitative (*non-flooded Petri dish*) and quantitative methods. Soil chemical-physical (texture, CEC NPK, OM, C/N, soil moisture and temperature) parameters were measured. Qualitative ciliate analysis allowed us to identify a total of 59 species representing 29 genera and 12 orders (plus 10 new species for the science). ORG sites were the richest in species followed by CON and FOR. The mean values for H' (2.6), d (3.4) and J (0.8) were significantly higher in ORG than in CON (H'=2.1; d=2.7; J=0.7) and FOR (H'=1.7; d=1.95; J=0.6) supporting the *intermediate disturbance hypothesis*. Multivariate analysis showed statistically significant differences between natural sites (FORest) and agricultural sites, as well as between the ORGanic and CONventional management farming systems. CCA analysis showed correlations between the distribution of species with environmental parameters indicating the importance of these parameters in shaping the ciliate communities in the different type sites. Altogether, these results showed the bioindicative potential of ciliate communities in discriminating between natural sites (FORests) and agroecosystems, as well as their capacity to discriminate, at least preliminary, between different management systems (ORG *vs* CON).