## PHOSPHOLIPID FATTY ACIDS AND ANALYSIS OF DISTANCE FOR COMPOSITIONAL DATA

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Phospholipid fatty acids can be used as indicators of soil microbial diversity. Phospholipid fatty acid compositions were determined in triplicate from a grassland soil, unfumigated and fumigated, and incubated for 0, 6, 10, 30 and 62 days. Analysis of distance on the similarity matrix between the samples was used to apportion the variability between the fumigation and incubation time treatments and their interaction. Partitioning of the squared distance for incubation time into single degree of freedom polynomial contrasts is presented. Initial analysis was done on log-transformed data because of the wide range of values. Ordination of the between-groups distance matrix indicated some distortion between the groups. By treating the data as compositional and using log-ratios, the ordination of the between-groups distance matrix showed less distortion. Comparisons are made with similar graphical results from canonical variates analysis. The main benefit from this analysis is improved interpretation of the data.