

**Question for April 20, 2004 Quiz 21 PDF**

21) A researcher studying microbial soil activity is interested in comparing soil activity under different species of trees. He hypothesizes that the microbial activity will vary with tree species since the microbial activity is dependent on the differing leaf litter input from the trees. He is further interested in determining if the microbial activity will be modified with elevated levels of CO<sub>2</sub>. The study is conducted in 6 large chambers, three with ambient CO<sub>2</sub> and three with elevated CO<sub>2</sub>. In each chamber three sections are established: one with trembling aspen alone, one with aspen and paper birch, and one with aspen and sugar maple (a total of 6 chambers with 3 sections each gives 18 sections). Soil activity was measured in six cores from among the trees in each of the 18 sections. What approach would be used to compare the soil microbial activity (measured as mean phosphatase activity) for the three tree species and for the elevated / ambient CO<sub>2</sub>?

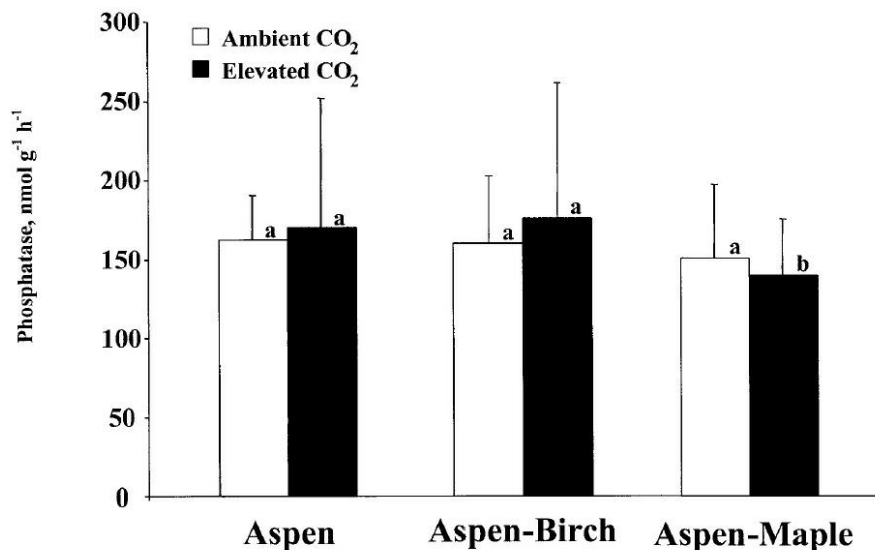


Fig. 1. Mean phosphatase activity in nonrhizosphere soil collected beneath aspen, aspen-birch, and aspen-maple growing under ambient and elevated CO<sub>2</sub>. Means with the same letter are not significantly different, and one standard deviation is indicated by the length of each error bar.