World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Neutral Sugars in Two-Step Hydrolysis of Laurel-Leaved and Cryptomeria japonica Forests

Authors : Ayuko Itsuki, Sachiyo Aburatani

Abstract : Soil neutral sugar contents in Kasuga-yama Hill Primeval Forest, which is a World Heritage Site in Nara, Japan consisting of lowland laurel-leaved forest where natural conditions have been preserved for more than 1,000 years, were examined using the two-step hydrolysis to clarify the source of the neutral sugar and relations with the neutral sugar constituted the soil organic matter and the microbial biomass. Samples were selected from the soil (L, F, H and A horizons) surrounding laurel-leaved (BB-1) and Carpinus japonica (BB-2 and PW) trees for analysis. The neutral sugars were one factor of increasing the fungal and bacterial biomass in the laurel-leaved forest soil (BB-1). The more neutral sugar contents in the Cryptomeria japonica forest soil (PW) contributed to the growth of the bacteria and fungi than those of in the Cryptomeria japonica forest soil (BB-2). The neutral sugars had higher correlation with the numbers of bacteria and fungi counted by the dilution plate count method than by the direct microscopic count method. The numbers of fungi had higher correlation with those of bacteria by the dilution plate method.

Keywords : forest soil, neutral sugars, soil organic matter, two-step hydrolysis
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020