September 1970 Brief 70-10253

NASA TECH BRIEF

Microflora in Soils of Desert Regions

The varieties and abundance of microflora in various barren areas have been examined and identified. Samples were collected from cold, polar, hot, volcanic, and high mountain deserts. Soils were generally greyish, yellowish, or brownish sands, low in organic matter and cation exchange capacity. Aerobic and microaerophilic bacteria were most abundant; next in abundance were algae and molds. Anaerobic bacteria were least present or undetectable.

Soils were collected using aseptic techniques to avoid contamination of the samples. Environmental measurements were made and photographs taken to record the appearance of soil structure, site, general area, and pertinent biotic, geologic, and topographic features applicable to soil microbial ecology.

The following methods were used to determine physical and chemical properties: 1) texture was determined by the hydrometer method; 2) soil color and Munsell notation were observed on the air-dry soil by comparison with Munsell soil color charts; 3) the moisture content was obtained gravimetrically by drying the soil to constant weight at 105°C (± 5°C); 4) after 1 hour equilibration, pH was determined on the saturated soil paste; 5) electrical conductivity values were obtained on a soil-water (1:5) extract; soluble cations and anions were obtained with a slightly acidified soil-water (1:5) extract, followed by colorimetry, flame-photometry, or atomic-absorption spectrometry; 6) analyses for organic carbon were made by chromic acid digestion and gravimetric determination of evolved CO_2; 7) organic nitrogen content was determined by the Kjeldahl method; and 8) cation exchange capacity was determined by means of the barium chloride-triethanolamine procedure.

Note:

The following documentation may be obtained from:

Clearinghouse for Federal Scientific
and Technical Information
Springfield, Virginia 22151
Single document price $3.00
(or microfiche $0.65)

Reference:
NASA-CR-101127 (N69-26316), Abundance of Microflora in Soils of Desert Regions

Patent status:

No patent action is contemplated by NASA.

Source: Roy E. Cameron of
Caltech/JPL
under contract to
NASA Pasadena Office
(NPO-11215)

Category 05