DETERMINATION OF HYDROGEN ION CONCENTRATION OF SOILS BY THE QUINHYDRONE METHOD.

I. ON SOME FACTORS INFLUENCING THE pH VALUES.

By

A. ITANO, S. ARAKAWA and A. MATSUURA.

(Received Nov. 2nd., 1929).

Preliminary to the determination of hydrogen ion concentration of soils representing the dry-farm and rice-field, collected from different parts of Japan through the courtesy of Agricultural Experiment Stations, it was felt necessary to formulate the method of treatment of the samples, since various investigators have treated the samples differently with somewhat varied results.

The following factors were investigated and the results are given below:—

1) N/10 calomel, simplified-saturated calomel and the standard quinhydrone electrodes all give the similar results.

2) An amount of quinhydrone to be used for each determination is 0.05 g. per 15 c.c. of the sample.
(3) No change of E. M. F. is observed within five minutes after the equilibrium is reached.

(4) By air-drying the soil from the rice-field, the pH is increased or becomes alkaline.

(5) No appreciable influence is observed by different degree of grinding the soil.

(6) The suspension gives a smaller pH value than the filtrate.

(7) Shaking the soil with water for five minutes is sufficient to get the result.

(8) The best soil-water ratio is 1:1, and 1:1.5 ratio is preferred for some soils, such as humic and volcanic.

From the results noted above, the following procedure is adopted for our investigation:

A definite amount of air-dried soil sample is placed in Erlenmyer flask and the neutral distilled water is added, 1:1 (1:1.5 is used in case of humic or volcanic soil.), and rubber stoppered. The flask is shaken for five minutes, filtered through a neutral filter paper. Fifteen cubic centimeter of the filtrate is taken and 0.05 g. of quinhydrone is added and the determination is made as usual.

STUDIES ON THE FERMENTATION PRODUCTS
BY MOULD FUNGI. VI.

ASPERGILLUS GLAUCUS. PART II.

By

YUSUKE SUMIKI.

(Agricultural Chemical Laboratory, Tokyo Imperial University).

(Received Nov. 22nd, 1923).

Aspergillus glaucus is cultured in the following media at 30°C consisting of glucose (10%), K-mono & diphosphate (each 0.015%), Mg-sulphate & Ca-chloride (each 0.01%), dist. water (90%), Fe-chloride & Na-chloride (each trace), Ca-carbonate and nitrogen source.

<table>
<thead>
<tr>
<th>No.</th>
<th>Total (l)</th>
<th>Day</th>
<th>N-source (%)</th>
<th>Ca-carbonate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>8</td>
<td>76</td>
<td>peptone 1</td>
<td>0.3</td>
</tr>
</tbody>
</table>