of the tissue sections was prevented by small platinum hooks anchored to the central absorption chamber. "KOH-papers" were placed in the central absorption chambers of the Warburg vessels as recommended by Dixon and Elliott[3] to facilitate absorption of carbon dioxide evolved during respiration. Upon completion of the experiment the tissues were dried to a constant weight at 105° C, and the wet weight calculated by multiplying the dry weight by 5, the factor used by Warburg.[2]

In four typical experiments the cutting edges of the instrument were separated by a strip of metal 0.3 mm thick. The dry weights of the tissue sections were 7.4, 7.5, 7.4 and 7.2 mgm, corresponding to wet weights of 37.0, 37.6, 37.3 and 36.0 mgm, respectively, when multiplied by the factor of 5. The wet weights obtained by direct weighing were in substantial agreement, being 41.0, 40.5, 40.0 and 40.5 mgm, respectively. The calculated thickness of the tissue sections were within the limit specified by Warburg, being 4.1×10^{-2}, 4.05×10^{-2}, 4.0×10^{-2} and 4.05×10^{-2} cm, respectively. The Q_{0_2} values, based on dry weight, were of the proper magnitude, namely, -10.0, -10.5, -9.7 and -9.9 cu mm. When the cutting edges were separated by approximately 0.6 mm, the thickness of the tissue exceeded the maximum value specified by Warburg, and a Q_{0_2} value of -7.2 cu mm showed that the tissue did not respire in all its parts.

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AMMONIUM FLUORIDE FUSION: A RAPID MEANS OF DETERMINING POTASSIUM IN SOILS

ORIENTATION data in the study of soil fertility problems require quick and reasonably reliable methods for determination of the major plant food elements in soils. In the case of total potassium a less time-consuming procedure than is now available for accurate estimation of the element would be of distinct advantage in many investigations.

Studies by Shead and Smith[1] showed that it was feasible to decompose refractory silicates with fused ammonium fluoride, with reduction of the time required for fusion to as low as approximately ten minutes. Although their work was limited to the determination of silica in glass sand, their data showed that other constituents were not lost; and since potassium would likewise remain in the non-volatile residue, the procedure offered promise for the determination of potassium.

In preliminary experiments with application of an adaptation of Shead and Smith's procedure to a number of tropical soils, the time required for determination of potassium has been reduced as much as one half; and approximately 80 to 92 per cent. of the value for K, as determined by a modification of the classical J. Lawrence Smith method,[2] has been obtained.

The technical grade of ammonium bifluoride suggested by Shead and Smith has proved somewhat more satisfactory than the fluoride, and it is believed, therefore, that the technique required to make this method of decomposition applicable to all kinds of soils can be developed to such a point that the time required for the determination can be materially reduced, and the accuracy of the determination of potassium improved. Details of the procedure as developed will be published at a later date.

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