APPARATUS FOR MEASUREMENT OF OXIDASE AND CATALASE ACTIVITY.

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On account of some undesirable features of the simplified Bunzel oxidase apparatus, the author has designed a simple apparatus (Fig. 1) incorporating the advantages of both the simplified Bunzel apparatus and the original design.

The simplified Bunzel oxidase apparatus makes no provision for the absorption of CO₂ other than by the reagents used. In some reactions the CO₂ production cannot be disregarded without error. Bunzel gives data on this point.

This source of error is removed in the new design by using a caustic tube and alkali to absorb the CO₂ produced during the reaction. 1 cc. of 0.1 N alkali is placed in the caustic tube, and on shaking the apparatus the liquid surges back and forth beneath the tube, forcing the air over the alkali.

The apparatus has a volume of 68 cc. measured to the zero of the middle graduated tube. The volume of glass comprising the boat is 3 cc., to which is added 1 cc. of alkali, 2 cc. of plant juice or dilution, and 5 cc. of reagent and buffer solution, totaling 11 cc. In case it is desired to use the apparatus without the alkali tube, the total volume of liquid should be 11 cc. This allows 57 cc. of air space in which a difference of 1 cm. between the mercury levels in the manometer corresponds to a change of 0.75 cc. in volume at 760 mm. pressure. The manometer is graduated for both positive and negative pressures.

The apparatus can be conveniently used for the determination of catalase activity.

FIG. 1. Simplified apparatus for measurement of oxidase and catalase activity, with tube for CO₂ absorption.