TECHNICAL SECTION

JOURNAL OF Agricultural and Food Chemistry

- Biochemical Engineering
- Fermentation
- Food Processing
- Nutrition
- Pesticides
- Plant Nutrients and Regulators

PLANT NUTRIENTS AND REGULATORS

Surfactants in Fertilizers. Surfactants were found to accelerate the primary reaction between phosphate rock and sulfuric acid in the laboratory by Fox, Batson, and Breen. However, no significant effect was found on the extent of the over-all reaction in the 24 hours after mixing. Beneficial results were limited largely to improvement in the physical properties of the products. They report that concentrated superphosphate improvement was more pronounced than the improvement of ordinary superphosphate.

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Phosphate Reversion. Small amounts of sodium salts (about 1% sodium) were found by Way and Nelson to inhibit the formation of citrate-insoluble phosphorus pentoxide in nitrogen-phosphate and nitrogen-phosphate-potash fertilizers. The sodium inclusion is apparently more effective if added to the phosphate rock before acidulation rather than to the superphosphate before ammoniation.

PESTICIDES

Pyrethrum Analysis. A quick, simple method for determining pyrethrins down to concentrations of about 0.04 mg. per ml. is presented by Levy and Estrada. The method is based on the development of a red color by pyrethrum extracts upon addition of sulfur solutions in alcoholic potassium hydroxide and in carbon tetrachloride. The authors suggest that the method may aid in the rapid classification of pyrethrum flowers, the evaluation of flower extraction processes, and plant control of commercial insecticides.

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FERMENTATION

Citrus Waste Utilization. The possibility of fermenting citrus molasses to citric acid or riboflavin was investigated by Gaden, Petsiavas, and Winoker. Citric acid production was found unsatisfactory, but riboflavin production was encouraging. Although this method was not satisfactory enough to be competitive with the present methods used for riboflavin production, its use to enrich citrus molasses for animal feeding seems practicable.

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FERMENTATION—NUTRITION

Digestion by Rumen Microorganisms. Glucose was found to be the principal intermediate compound of cellulose degradation by microorganisms in the rumen by Kitts and Underkofler. They also found that the cellulolytic enzymes are not present as such in the rumen fluid but are associated with the bacterial cells. Cell-free enzyme extracts were prepared and found to be stable at low temperature and partially inactivated when allowed to stand at room temperature for 144 hours.

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