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The Effect of Manganese on the Growth of Rats

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anhydrous ether medium. Over two equivalents of the Grignard reagent were employed, one to react with the phenol group and the other with the nitrile. The addition compound was decomposed with water and ammonium chloride at about -15 degrees C. The ketimine extracted with ether was precipitated as the hydrochloride by the addition of dry hydrogen chloride.

The hydroxynitriles were prepared from the corresponding hydroxy-aldehydes by the action of acetic anhydride on their oximes. Some modifications were worked out in the preparation of the oximes and the nitriles.

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THE EFFECT OF MANGANESE ON THE GROWTH OF RATS

V. E. NELSON, J. M. EVVARD, and W. E. SEWELL

From the laboratories of Physiological Chemistry and Animal Husbandry, Iowa State College, Ames. Manganese in small amounts stimulated the growth of rats. The basal diet employed consisted of casein 18, yeast 12, cod liver oil 5, salts 185, 3.7, and dextrin 61.3. Manganese sulphate was fed at two levels, 100 and 600 parts per million of ration. In 56 days the control gained 1.78 grams daily and consumed 434 grams of feed per 100 of grain. On the smaller manganese allowance the gain was 2.06 grams, and the feed requirement was 391.4 grams for 100 gain. On the larger manganese allowance the figures were 1.69 and 458.5. Apparently the 600 parts of manganese sulphate per million inhibited growth.

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THE COPPER CONTENT OF LIVERS AND LIVER EXTRACTS

G. N. QUAM

Stated in mg. per kg. beef liver has been found to contain 16 to 30 mg. for the adult and for calf liver McHargue has reported 161.3 mg. while Robscheit-Robbins and others reported 145 mg. Adult hog liver yielded an average of 50 mg. per kg. A human fetal liver yielded 69.36 mg. per kg.; that of a still-born child 28