On the results of these experiments the inactive substance of the rye grain cannot be considered as an auxin precursor; it is merely a modification of auxin and derived from it.

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Vitamins in Rose Hips

THE prominence now being given to rose hips as a source of vitamin C has tended to obscure their value as a source of other vitamins. Svensson[1] reported in 1936 that different species of Scandinavian rose hips formed a rich source of vitamin A, since they contained carotene equivalent to 6,000 to 10,000 I.U. of vitamin A per 100 gm. We have found British hips also to be a rich source of vitamin A. Using dried extracts prepared in these laboratories from several tons of ripe hips, mainly *R. canina* and *R. dumetorum*, collected in this area last autumn, we have found carotene contents equivalent to about 6,000 I.U. of vitamin A per 100 gm. Tests on samples of several other species kindly provided by Dr. Melville gave similar results, and the conclusion may be drawn that British rose hips have a vitamin A value similar to that of carrots. The carotene estimations were made by an unpublished method, of which Dr. T. Moore and Dr. Vernon Booth kindly gave us details.

These dried extracts were prepared with the object of obtaining a stable potent source of vitamin C. The vitamin C content ranged from 1,300 mgm. to 1,500 mgm. per 100 gm., indicating them to be one of the richest sources of the natural vitamin C so far available in Great Britain, although still more potent dried preparations have been obtained in Germany by Sabalitschka and Priem[2] using species of rose hips containing more vitamin C. Storage experiments on these dried extracts at different temperatures indicate that they form a stable source of the vitamin, the loss of vitamin C in 6 months at normal temperatures being negligible. It has been shown by a number of workers[3,4] that in rose hip syrup and black currant purée stored for six months at normal temperatures the loss of vitamin C may be as high as 50 per cent. Such a period of storage may easily occur between the preparation of the syrup or purée and its consumption.

Rose hips have recently been reported by Bacharach and Coates[5] to contain significant amounts of vitamin P (about 7 G.L. units per gm.). These workers have kindly determined the vitamin P in one of our dried extracts, and obtained the remarkably high figure of 520 G.L. units per gm., indicating that the extract is more than five times as active as purified hesperidin, and more than seventy times as active as fresh rose hips. From the method of preparing the dried extract we should have expected it to contain six or seven times as much vitamin P as the fresh rose hips, or 40–50 G.L. units per gm. instead of the 520 G.L. units per gm. found by Bacharach and Coates. This discrepancy may be due to two causes: (1) our rose hips containing more than ten times as much vitamin P as the hips examined by Bacharach and Coates; (2) loss of vitamin P in Bacharach and Coates's hips before they were tested. In regard to (1), Bacharach and Coates found no significant difference in the vitamin P content of two species of rose hips, *R. arvensis* and *R. coriifolia*, one of which contained much more vitamin C, and the other much less than was present in the rose hips used in making our extracts. If the discrepancy is due to (1), there must be a variation in the vitamin P content of different samples of rose hips as wide as that found for vitamin C, but not necessarily running parallel with it. In regard to (2), it should be stated that our extracts were made with special precautions to avoid destruction of vitamin C by the oxidizing enzymes present in the fresh hips, and the high vitamin C content of our dried extract indicated that our precautions had been successful. It may be that in so doing we also avoided loss of vitamin P.

We have confirmed the finding of Pyke[6] that rose hips do not contain a significant amount of vitamin B_1.

Full details of our investigations will be published later.

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Vernalization of Lettuce

THERE has recently come to hand a report[1] on the vernalization of two varieties of lettuce. The plants obtained from seed which had been germinated and given 28, 42 and 56 days treatment at 4° C. all produced flowering stalks 14–20 days earlier than the control.

Similar results have been obtained with the cabbage type variety "Ideal" in experiments carried out at this Institute during 1942. It was found that when moistened seed was kept at 2–8° C. for 16 days the plants from them formed flowering stalks 20 days earlier than the controls, and were ready for harvesting for seed 26 days ahead of the controls. The date of hearting was not affected by vernalization, but the plants from vernalized seed remained in the hearted condition only 4–5 days, compared with approximately 26 days for the control. This had the important effect of reducing by about 50 per cent the loss of plants due to soft rot, Botrytis spp., which develops rapidly while the plants are compact on the ground.

Vernalization of lettuce is clearly of no value to the producer of lettuce plants for sale, but may be of