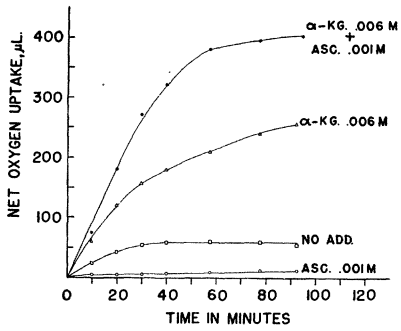

FIG. 1. The stimulation of L-tyrosine oxidation by ascorbic acid (ASC) in the presence of α-ketoglutarate (*α-KG*). Flask contents: 2.0 ml rabbit liver powder extract; 1.0 ml pyrophosphate buffer; 0.3 ml α-ketoglutarate (20 μM) or 0.3 ml of H_2O. The side arms contained 10 μM L-tyrosine in 0.5 ml phosphate buffer (buffer alone was used in the control flasks), and 0.2 ml ascorbic acid (4.0 μM). Total volume, 4.0 ml. Both α-ketoglutarate and ascorbic acid were omitted in the no-addition flasks (*No ADD.*).

powder extract greatly reduces the ability to oxidize *p*-hydroxyphenylpyruvic acid, but this activity is nearly completely restored by the addition of ascorbic acid to the dialyzed extract system.

Considerably less than stoichiometric amounts of ascorbic acid are needed for the oxidation of tyrosine. Titration with 2,6-dichlorophenolindophenol at the end of the incubation period has shown that nearly half the added ascorbic acid remains in the reduced form. Since the titration values are the same for the control flasks and the ones in which tyrosine was oxidized, it appears that no net consumption of ascorbic acid is required for the oxidation of tyrosine.

Although these results are in agreement with the theory that ascorbic acid acts as a cofactor for the enzyme system catalyzing the oxidation of *p*-hydroxyphenylpyruvic acid, the data presented below suggest that ascorbic acid may act in a less specific manner.

Knox (*1*) observed in experiments with the rat liver homogenate preparation, that D-isoascorbic acid also increases the oxidation of tyrosine. We have tested several compounds using the acetone powder extract preparation and have found that D-isoascorbic acid, D-ascorbic acid, and hydroquinone are just as effective as L-ascorbic acid on a molar basis. Homogentisic acid, *p*-aminophenol, *p*-phenylenediamine, and 2,6-dichlorophenolindophenol also increase tyrosine oxidation but are less effective than ascorbic acid. On the other hand, catechol, resorcinol, 3,4-dihydroxybenzoic acid, 3,4-dihydroxyphenylalanine, dihydroxymaleic acid, cysteine, and glutathione are unable to replace ascorbic acid or to supplement a suboptimal concentration of ascorbic acid. The oxidized forms of ascorbic acid or hydroquinone (dehydroascorbic acid or quinone) are nearly as effective as the reduced forms. This would be expected if these compounds undergo cyclic oxidation and reduction during the oxidation of tyrosine.

The observation that several compounds are able to stimulate the oxidation of *p*-hydroxyphenylpyruvic acid suggests that the requirement is one for a compound having the proper oxidation-reduction potential. Whether these compounds found to be active in place of ascorbic acid function by protecting the small amount of ascorbic acid present in the powder extract or completely replace ascorbic acid in this system cannot be determined without further purification of the enzyme system involved.

References

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Comments and Communications

Zoological Nomenclature

NOTICE is hereby given that, as from June 29, 1953, the International Commission on Zoological Nomenclature will start to vote on the following cases involving the possible use of its plenary powers for the purposes specified against each entry. Full particulars of these cases were published on Dec. 29, 1952, in the *Bulletin of Zoological Nomenclature* in Double-Part 4/5 of Vol. 9. (1) *Astacus Fabricius,* 1775 (Class Crustacea, Order Decapoda), validation of (correction of an error in Opinion 104); (2) *Favus* Lanchester, 1900 (Cl. Crustacea, Ord. Decapoda), validation of (correction of an error in Opinion 73); (3) *flavipes* Olivier, 1795, *Dytiscus* (Cl. Insecta, Ord. Coleoptera), validation of, by the suppression of *flavipes* Fabricius, 1792, *Dytiscus.*

Comments on the above cases should be sent as soon as possible to the undersigned.

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Scientific Conferences and Papers

IT SEEMS worth while at this time, when so many conferences on such a variety of subjects are scheduled, to review the fundamental purposes of a scientific conference and the methods of best achieving these ends.

The principal objective of a scientific conference