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Development of a large scale system of 2-O-α -D-Glucopyranosyl L-ascorbic acid(AA-2G), a stable and safe derivative of L-ascorbic acid, for industrial application

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A major problem of Ascorbic acid(AA) *in vitro* is the instability of the molecule, which is rapidly oxidized to dehydroascorbic acid(DHA) and further oxidation products. In contrast to AA, AA-2G is very stable in neutral solution and resistant to heat, light and oxidation. Moreover, this AA derivative is converted by the action of α-glucosidase to AA in *vivo*.

Our laboratory previously yield succeeded to produce AA-2G from AA using CGTase with several kinds of sugar compounds. However AA-2G production was limited to the small scale.

For the development of the method of AA-2G production in a large scale we optimized the reaction condition for AA-2G production.

The optimized conditions are as follows: Among various kinds of substrates, the soluble starch was the most effective. The optimum concentrations of AA and soluble starch were 9%(w/v) and 6%(w/v), respectively. The optimum enzyme concentration for the production of AA-2G 2,500units/㎖. The reaction time was 24hrs and the AA-2G production was maximal at pH 5.5 and 37℃.