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Reductones and Photomorphogenesis in *Pleurotus ostreatus*

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Upon stimulation of light, development of fruit body from vegetative mycelia was initiated in *Pleurotus ostreatus*, thus, photomorphogenesis has begun. During photomorphogenesis, L-ascorbic acid-like substances called reductones were produced. These substances were accumulated initially in the illuminated mycelium preceding the initiation of fruiting, and these would accumulate in the primordium and the fruit body in increasing concentrations. These reductones were identified as L-ascorbic acid, D-erythroascorbic acid, 5-O-( $\alpha$ -D-glucopyranosyl)-D-erythroascorbic acid, 5-O-( $\alpha$ -D-xylopyranosyl)-D-erythroascorbic acid, 5-methyl-5-O-( $\alpha$ -D-glucopyranosyl)-D-erythroascorbic acid and 5-methyl-5-O-( $\alpha$ -D-xylopyranosyl)-D-erythroascorbic acid. These were oxidized by ascorbate oxidase to produce hydrogen peroxide. It was discovered that L-ascorbic acid could replace light in stimulating initiation of fruiting through the formation of hydrogen peroxide. Thus, it suggests that these reductones might play a role in mediating light stimulus *via* hydrogen peroxide in photomorphogenesis. And these may also participate in metabolic processes accompanying the formation of fruit body.