AMYLOGLUCOSIDASE FROM LICHEN FUNGUS

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Lichen from the bark of mango trees was separated and was surface sterilized with 0.1% $HgCl_2$ solution for 3 minutes. The sterilized Lichen was homogenized and streaked out in LFM (Lichen Fungus Medium of ATCC). A fungus grew but not the lichen. This fungus was continuously maintained in potato agar plates.

The fungus doesn't sporulate under our culture conditions and therefore mycelium was always used as an inoculum. For the growth curve, wet volume, NADPH value (proportional to amount of living cells), protein and turbidity values were plotted against time. Stationary phase was reached at about 60 hours.

For enzyme production, this fungus was grown in submerged culture of potato starch (0.5%) medium under aeration. The culture medium had very little alpha amylase activity which was confirmed by Phadebas Amylase test (Pharmacia, Sweden). The enzyme in culture medium is mostly amyloglucosidase and the activity was 0.0317 moles/ml/min. When grown in submerged cultures of potato starch (1.8%) medium and corn starch (1.8%) medium in orbital shaker, the Amyloglucosidase activities were 2.025 moles/ml/min. and 0.473 moles/ml/min respectively.

The Amyloglucosidase in the culture medium was purified by DEAE cellulose chromatography gave a 4.28 fold purification with 100% recovery.

This enzyme showed zero order kinetics for 2 hours at 41°C in 0.02M Phosphate buffer, pH 6.9 containing 0.5% starch. The pH optimum of the enzyme was 5.1