Isolation of Thermostable α amylase producing Bacteria

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This study was aimed in isolating a thermophilic bacteria that produce thermostable alpha amylase. Several bacteria were isolated from cow-dung and from "Kanchi" during cooking of rice. The bacteria were cultured in Nutrient broth and transferred to nutrient agar media containing 0.2% starch. Amylase producing strains were isolated by staining starch in media with iodine. One strain from "Kanchi" with the highest starch hydrolysing activity was selected. This is a gram positive *Bacillus* and named as BR1 because the organism is *Bacillus* and obtained from rice broth "kanchi". The BR1 strain was activated in nutrient broth containing 0.2 % soluble starch at 45^0C for 18h and used as inoculum. The submerged fermentation medium, had 0.2% starch peptone (0.2%) and minerals at pH 7.0 and was inoculated with 20% inoculum. The fermentation was carried out at 50°C. The activity of alpha amylase in the fermentation medium was monitored by incubating in starch phosphate buffer (pH7) and assaying for reducing sugar by DNS method. During 24h fermentation, the starch concentration in the medium decreased while the alpha amylase activity increased, indicating that strain BR1 produces alpha amylase. The alpha amylase activity was next assayed at 85^0C and ^{pH} 7 as the fermentation progressed. The alpha amylase activity increased with time. The alpha amylase was active at pH7 at 70^0C, 85^0C and 95^0C when assayed against starch. The activity decreased with increasing temperature and the activity at 95^0C was 71% compared with 70^0C activity. The growth of *Bacillus* BR1 strain reached a maximum in 24h and thereafter decreased up to 48h. However the alpha amylase activity reached a maximum at 48h of fermentation as assayed at 95^0C in presence of Ca (135ppm). These results indicate that the *Bacillus* BRI strain produces thermostable alpha amylase at 95°C. Further studies are in progress to characterise the *Bacillus*, alpha amylase and optimizes the fermentation medium.