SUMMARY

A total of 20 samples from cow dung, soil and rumen fluid were collected and 5 best cellulase producing bacterial strains were screened by CMCase assay out of 81 bacterial isolates. Three isolates AC 8 and AC 15 were gram positive while AC 8, AC 19, AC 36 and AC 80 were gram negative rods. All bacterial isolates grew best at 30°C-40°C, pH 7.0-8.0 and at 18 hours of incubation when inoculated with 2-3% inoculum. The enzyme production was maximum at 37°C-40°C, pH 7.0-8.0, with substrate concentration of 1% CMC after 48-72 hours of incubation with 2-3% inoculum of 18-20 hours old culture. Maximum cellulase activity was obtained at pH 5.0 with 1% CMC concentration at 50°C in all bacterial strains. Ribotyping and sequence analysis confirmed that these cellulose producing strains are *Bacillus subtilis, Bacillus cereus, Shigella flexneri* and *Escherichia fergusonii.* Bradford method of protein estimation showed that specific activity of bacterial cellulases ranges from 28-65 U/mg.