

Survival of bifidobacteria and other selected intestinal bacteria in TPY medium supplemented with curcumin as assessed in vitro

ABSTRACT

The growth of two Bifidobacterium strains (Bifidobacterium longum BB536, Bifidobacterium pseudocatenulatum G4) and other selected intestinal bacteria (Lactobacillus acidophilus, Lactobacillus casei shirota, Enterococcus faecalis JCM 5803 and Escherichia coli K-12) were studied in TPY medium containing various concentrations of curcumin (0.025, 0.050, 0.075 and 0.1% (w/v)). Viable cell counts of the bacteria and their respective pH medium were determined during incubation period of 12h, 24h, 36h and 48h incubated at 37°C. In the presence of curcumin, cultures showed various degrees of growth inhibition compared to in TPY medium without curcumin. E. faecalis and B. longum BB536 were survived better than the other bacteria tested. Among the bacteria tested, L. acidophilus recorded the most sensitive to curcumin. The presence of curcumin did not change the pH of the medium as compared to the basal TPY. The ability of the bacteria to degrade curcumin after 48h incubation was studied using spectrophotometric method measured at 400.4 nm wavelength. The overall percentage reduction of 0.025, 0.050, 0.075 and 0.1% of curcumin by the bacteria tested was 56-60, 18-24, 15-16 and 12-14, respectively.

Keyword: Curcumin; Growth inhibition; Intestinal bacteria; Percentage reduction.