Background and objectives: Bifidobacterium is generally characterized as Gram-positive, non-sporeforming, non-motile, anaerobes that are catalase-negative and saccharolytic and found in a variety of habitats such as human and animal gastrointestinal tract, dental caries and vagina. The aim of this study was to isolate bifidobacterium from stool and determine their inhibitory effect against some pathogens.

Material and methods: 130 stool samples were collected from under 5 years old children during spring season 2010. The samples were enriched in MRS broth and subcultured on MRS agar medium. The isolated bacteria were characterized by phenotypical (morphology, gram staining, catalase, oxidase and motility) and genotypical (PCR) method at genus and species level. The antimicrobial substance was extracted with help of ethyl acetate solvent from broth inoculated media and the antimicrobial activity against some pathogenic bacteria such as Salmonella typhi and Shigella dysenteriae was evaluated.

Results: Eleven B. bifidum and four B. adolescentis where isolated from fresh stool by culture and confirmed PCR. Antimicrobial compound extracted from culture media showed a potent inhibitory activity against all tested bacteria. The obtained MIC of antimicrobial compound from Salmonella typhi and Shigella dysenteriae was 0.2 mg/ml respectively. The inhibitory substance was distinct from bacteriocine, lactic acids and acetic acids which are produced by these bacteria.

Conclusion: B. animalis, B. adolescentis and B. bifidum as three probiotics can be located gut, dental caries and vagina, prevent the human body from adverse effects of pathogens.

Keywords: Bifidobacterium, PCR, Antimicrobial substance