# DEVELOPMENT OF PROBIOTIC STARTER CULTURE USING BIFIDOBACTERIA ISOLATED FROM FRESH INFANT STOOLS

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## Introduction

Probiotics consist of viable mono or mixed culture of micro-organisms, ingested in the form of dried cells or in fermented food preparations that can benefit the host by maintaining the intestinal microbial balance. The word probiotic originated from Greek and it means 'pro-life'. The primary use of probiotics is to protect the integrity of gut microflora. This can be achieved either by enhancing the growth of endogenous population of beneficial organisms or by increasing their numbers by routine continuous ingestion. The other beneficial effects of probiotics include improvement of lactose intolerance, digestibility of milk products, anticarcinogenic properties, reduction of serum cholesterol levels, increase calcium resorption, synthesis of vitamins and pre-digestion of proteins. Therefore, the main objective of the study was to select suitable strains of bifidobacteria that possess these probiotic characteristics to be incorporated into fermented foods. Several *in vitro* methodologies have been selected for the screening purposes.

## Materials and Methods

Isolation of bifidobacteria from fresh infant stools was performed using modified TPY medium as recommended by Scardovi (1986). The inhibitory activity of bifidobacteria against selected food-borne pathogens was analysed using differed assay technique. The survival rate of bifidobacteria in low pH after 3 hours of exposure was conducted according to the method recommended by Berrada et al. (1991). The ability of bifidobacteria to grow in the presence of 0.2 and 0.4% bile was also examined using the method of Gilliland et al. (1984). Adhesion of bifidobacteria to human colon carcinoma HT29 and HT29MTX cell lines was conducted *in vitro* using the method of Bernet et al. (1993), with slight modification.

## Results and Discussion

Twenty-eight strains of bifidobacteria were isolated from fresh infant stools. All strains were Gram positive, with variable in morphology, catalase negative, negative for haemolysis test, and produced acetic acid and lactic acid. Three strains (*B. infantis* C040225, *B. breve* F0526100 and *B. breve* G012048) exhibited good antibacterial activity. The survival rate of bifidobacteria in low pH was strain specific. Four strains (*B. infantis* D042022, F042466, F0526100 and G001204) could survive after 1-hour exposure to pH 2.0. The rest were unable to tolerate this pH condition. Strain *B. infantis* G001204 also showed good survival in the present of 0.2 and 0.4% bile. Most of the strains tested did not adhere to HT29 and HT29MTX cell lines, except *B. infantis* G001204.

## Conclusions

The *B. infantis* G001204 strain has been selected for further study due to excellent exhibition of probiotic properties.

## References

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