

## PREBIOTIC EFFECT OF WATER SOLUBLE CARBOHYDRATES OF *Amorphophallus campanulatus* ON PROBIOTIC YOGHURT

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Kidaram (*Amorphophallus campanulatus*) is a tuberous, indigenous herb with high nutritional and medicinal values. Water soluble carbohydrates were extracted from Kidaram corm using aqueous extraction procedure. Carbohydrate composition of Kidaram extract was analyzed using Gas Chromatography (GC) and Thin Layer Chromatography (TLC) techniques. Experimentally prepared water soluble Kidaram carbohydrates and commercial inulin (Raftilose<sup>®</sup>) were used to determine their prebiotic potentials in non-fat (0.45% milk fat) yoghurt. Yoghurt containing probiotic culture (ABT-3) with Kidaram carbohydrates 1%, probiotic culture with Inulin 0.56%, a control without any prebiotic and a standard with commercial Rich<sup>®</sup> starter culture were prepared and stored up to 15 days at 4 °C. Freeze dried ABT-3 culture contained *Bifidobacterium bifidum*, *Lactobacillus acidophilus*, *Streptococcus salvarius*, subspecies *thermophilus*. Commercial Rich<sup>®</sup> starter culture contained *Streptococcus thermophilus*, *Lactobacillus delbrueckii*, subspecies *bulgaricus*. Population of total lactic acid bacteria, titrable acidity, pH and sensory properties were assessed after 1, 8 and 15 days of storage at 4 °C. Sensory properties were evaluated by an untrained panel of 30 members using a five point Hedonic scale (1 like extremely, 5 dislike extremely).

Results were analyzed using ANOVA and Friedman non-parametric test. In comparison with total lactic acid bacterial count of control, Kidaram carbohydrates and Inulin incorporated yoghurt had 20 and 50 fold higher bacterial count, respectively at the end of 15 days of storage. The scores for sensory attributes of color, odor, taste, texture and overall acceptability differed ( $P < 0.05$ ) in four treatments. The overall acceptability scores were highest for yoghurt with probiotic culture without any prebiotic. The survival of lactic acid bacteria were enhanced by both Kidaram and Inulin. Water soluble Kidaram carbohydrates could offer an advantage of delivering a prebiotic effect while presenting gelatinized texture in yoghurt due to the starch granules.

**Key words:** Kidaram, Yoghurt, Probiotic, Prebiotic, Inulin