



Abstract

In the present study, the indigenous microflora of the kefir grains and kefir milk was studied and colonies of each isolate were enumerated between the 30-300 range and CFU/mL of each isolate was found in the range of 10^8 to 10^{11} . Total 12 isolates were obtained which showed similarity with the Lactic acid bacteria (LAB), *Streptococcus spp.* and yeasts. The isolates were further subjected to the morphological and biochemical tests which showed that they were gram +ve, non-motile, mostly catalase -ve, and of variable shapes (rods, cocco-bacilli, diplococcus etc.). Production and characterization of kefir was carried out by inoculating the pasteurized milk samples (buffalo, cow, goat and camel) with kefir grains and kefir milk. At 25°C for 12 hrs with inoculum size of 10% v/v kefir milk and 3% w/v kefir grains milk samples were able to produce quality kefir. Nutritional composition of kefir such as protein content, total sugar content, cholesterol content and anti-oxidant activity were estimated and the results obtained were significant when compared with commercially available kefir. Kefir produced was tested for its antimicrobial activity against the *B. subtilis*, *S. aureus* and *B. licheniformis* and maximum zone of inhibition was obtained against *S. aureus* by buffalo kefir milk (15.25 mm), cow kefir grains (15.25 mm), goat kefir milk (15.5 mm) and goat kefir grains (15.6 mm). The anti-diabetic analysis of kefir was performed by α -amylase disc inhibition assay and highest zone of clearance was obtained by kefir produced from camel milk (62.83%). Similarly kefir was also evaluated by organoleptic analysis and buffalo kefir milk produced from kefir grains was considered as the best upon organoleptic analysis with a score of 7.9 out of 9 on hedonic scale. Probiotic testing of the isolates from kefir grains and kefir milk thus concluded that kefir is not only nutritionally important but has the potential to be used as nutraceutical in the pharmaceutical industry. ,