

Table S1. Sample Code and Their Sampling Areas

Serial No	Sample Code	Areas	Category
1	SP 1	Committee Chowk	Household
2	SP 2	Chandni Chowk	Household
3	SP3	Saddar	Market
4	SP4	I-10	Market
5	SP5	G-13	Market
6	SP6	Morgah	Market
7	SP7	Shamsabad	Household
8	SP8	Karachi Company	Market
9	SP9	Afshan Colony	Market
10	SP10	Choorh Chowk	Market
11	SP11	Alam Khan Road	Market
12	SP12	Qasim Market	Market
13	SP13	Qasim Market	Household
14	SP14	E-8	Market
15	SP15	Bhara Kahu	Household
16	SP16	Aabpara Market	Market
17	SP17	People Colony	Market
18	SP18	Murree Road	Market
19	SP19	Murree Road	Household
20	SP20	Ilyas Colony	Market
21	SP21	College Road	Market
22	SP22	Dhamiyal Road	Household
23	SP23	Shamsabad	Market
24	SP24	Alam Khan Road	Household
25	SP25	I-9/1	Household
26	SP26	College Road	Household

Table S2. Frequency Distribution of isolated *Lactobacillus* spp and *Lactococcus* spp

Name of isolate	Number of isolates (n)	Percentage
<i>L.delbrueckii</i> spp <i>delbrueckii</i>	6	21
<i>L. plantarum</i>	3	10
<i>L. fermentum</i>	2	7
<i>Lactococcus lactis</i>	4	14
<i>Enterococcus faecium</i>	5	17
<i>Streptococcus thermophilus</i>	3	10
<i>L. helveticus</i>	2	7
<i>Psuedopplantarum</i>	4	14

Table S3. Morphological Characteristics of Isolated Strains of LAB

Isolates	Colony Shape	Colony Color	Colony Margins	Cell shape	Gram Staining
<i>L. delbrueckii</i> spp <i>delbrueckii</i>	Round	Creamy White	Smooth	Long Rods	Positive
<i>L. plantarum</i>	Round	Yellowish White	Regular	Small Rods	Positive
<i>L. fermentum</i>	Round	Dull Creamy	Smooth	Small Rods	Positive
<i>L. paracasei</i> <i>subsp. paracasei</i>	Dotted	Creamy White	Regular	Mixed Long and Short Rods	Positive
<i>L. helveticus</i>	Round	White	Regular	Small Rods	Positive
<i>L. lactis</i>	Pinned Dot	Creamy White	Smooth	Paired Cocci	Positive
<i>E. faecium</i>	Pinned Dot	Creamy Yellow	Smooth	Paired Cocci	Positive
<i>S. thermophilus</i>	Round	Creamy White	Smooth	Cocci in Chains	Positive

Table S4. Isolated Strains Showing Mucoidity on Media

Sr. no	Isolates	Code	Mucoidity
1	<i>L.delbrueckii</i>	LD1	-ve
2	<i>L.delbrueckii</i>	LD2	-ve
3	<i>L.delbrueckii</i>	LD3	-ve
4	<i>L.delbrueckii</i>	LD4	-ve
5	<i>L.delbrueckii</i>	LD5	-ve
6	<i>L.delbrueckii</i>	LD6	-ve
7	<i>L.plantarum</i>	P1	+ve
8	<i>L.plantarum</i>	P2	-ve
9	<i>L.plantarum</i>	P3	-ve
10	<i>L.fermentum</i>	F1	+ve
11	<i>L.fermentum</i>	F2	+ve
12	<i>Lactococcus lactis</i>	L1	+ve
13	<i>Lactococcus lactis</i>	L2	+ve
14	<i>Lactococcus lactis</i>	L3	-ve
15	<i>Lactococcus lactis</i>	L4	-ve
16	<i>Enterococcus faecium</i>	E1	+ve
17	<i>Enterococcus faecium</i>	E2	+ve
18	<i>Enterococcus faecium</i>	E3	-ve
19	<i>Enterococcus faecium</i>	E4	-ve
20	<i>Enterococcus faecium</i>	E5	-ve
21	<i>Streptococcus thermophilus</i>	S1	+ve
22	<i>Streptococcus thermophilus</i>	S2	+ve
23	<i>Streptococcus thermophilus</i>	S3	+ve
24	<i>L.helveticus</i>	H1	+ve
25	<i>L.helveticus</i>	H2	-ve
26	<i>L. paracasei subsp. paracasei</i>	CP1	+ve
27	<i>L. paracasei subsp. paracasei</i>	CP2	-ve
28	<i>L. paracasei subsp. paracasei</i>	CP3	-ve
29	<i>L. paracasei subsp. paracasei</i>	CP4	-ve