



Supplementary Material

Microbiological Analysis of Commercially Available Poultry Feed in Pakistan

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Supplementary Table I. Morphological characteristics of isolated bacterial colony.

Isolates	Media	Colony color	Colony shape	Surface	Elevation	Margin
pfs65, pfs72	MSA	Yellow	Circular	Gelatinous	Convex	Entire
pfs4, pfs7, pfs10, pfs16, pfs18, pfs29, pfs34, pfs37	NA	Cream	Circular	Gelatinous	Convex	Undulate
pfs24	NA	Cream	Circular	Gelatinous	Convex	Entire
pfs13, pfs17, pfs23, pfs30	NA	Cream	Circular	Gelatinous	Convex	Entire
pfs14, pfs15, pfs27, pfs28	NA	Cream	Circular	Gelatinous	Convex	Erose
pfs2, pfs25	NA	Orange	Irregular	Gelatinous	Flat	Entire
pfs8	NA	Cream	Circular	Gelatinous	Umbonate	Erose
pfs5, pfs35	NA	Cream	Circular	Gelatinous	Convex	Entire
pfs6, pfs36	NA	Cream	Filamentous	Gelatinous	Flat	Erose
pfs41	MCA	Pink	Circular	Gelatinous	Convex	Entire
pfs46, pfs53	MCA	Light pink	Punctiform	Gelatinous	Convex	Entire
pfs103	SSA	Black centered colorless	Circular	Gelatinous	Flat	Entire
pfs107	SSA	Colorless colonies	Circular	Dry	Flat	Entire
pfs77	EMBA	Black colonies with green sheen	Circular	Gelatinous	Convex	Entire

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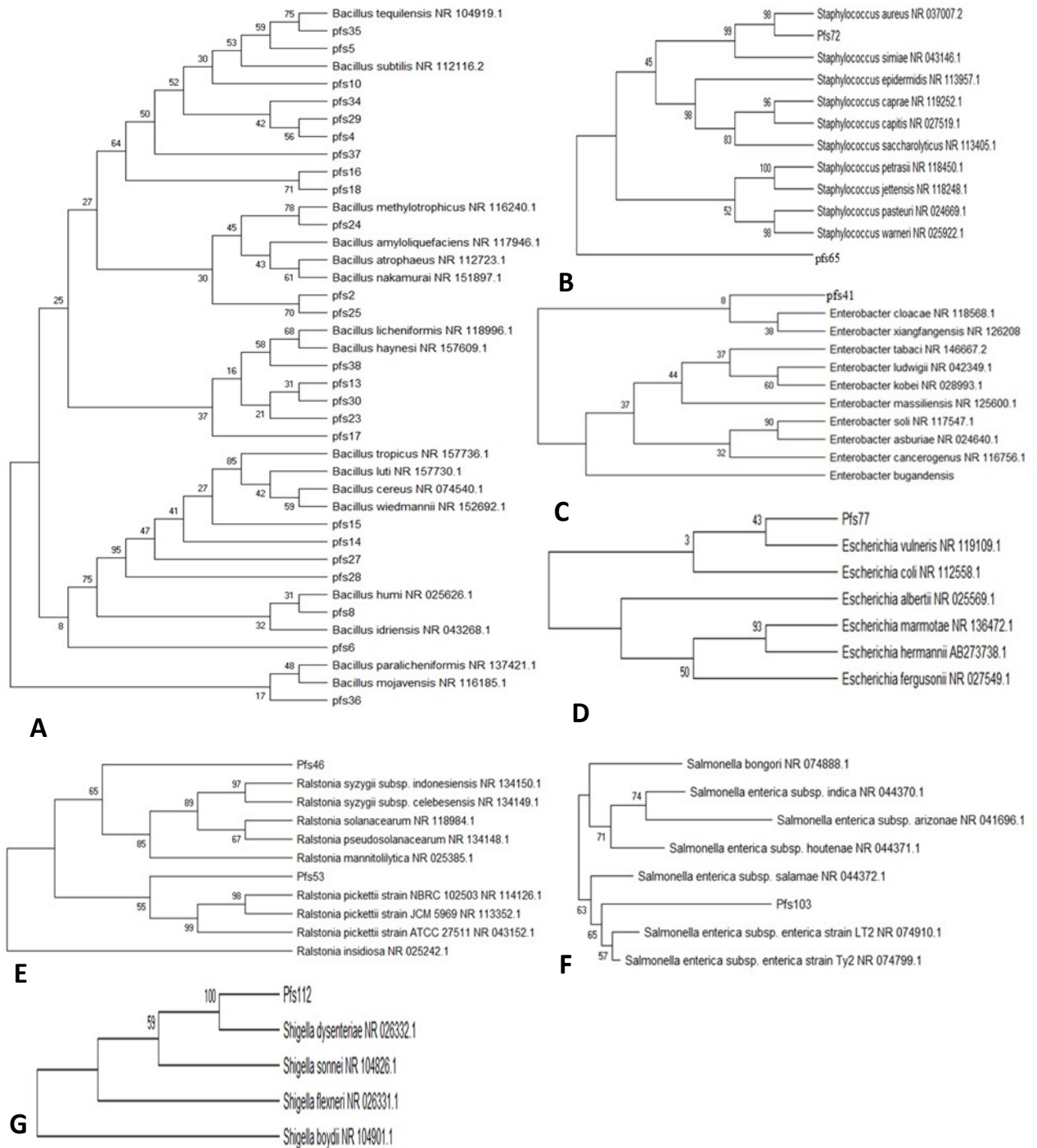
Supplementary Table II. Biochemical characteristics of isolates.

Isolates	Gram stain	Cat-alase test	Oxi-dase test	Sugar fermentation test							
				Glu-cose	Gas pro-duction	Malt-ose	Gas pro-duction	Su-crose	Gas pro-duction	Xylose	Gas pro-duction
pfs65, pfs72	+	+	-	+	-	+	-	+	-	-	-
pfs4, pfs7, pfs10, pfs16, pfs18, pfs29, pfs34, pfs37	+	+	+	+	-	+	-	+	-	+	-
pfs24	+	+	+	-	-	+	-	+	-	+	-
pfs13, pfs17, pfs23, pfs30	+	+	-	+	-	+	-	+	-	+	-
pfs14, pfs15, pfs27, pfs28	+	+	+	+	-	+	-	-	-	+	-
pfs2, pfs25	+	+	+	+	-	+	-	+	-	+	-
pfs8	+	+	+	+	-	-	-	-	-	-	-
pfs5, pfs35	+	+	+	+	-	+	-	+	-	+	-
pfs6, pfs36	+	+	-	+	-	+	-	+	-	+	-
pfs41	-	+	-	+	+	+	+	+	+	+	+
Pfs46, pfs53	+	+	-	+	+	+	+	+	+	+	+
pfs103	-	+	-	+	+	+	+	-	-	+	+
pfs107	-	+	-	-	-	+	-	-	-	+	-

+, positive; -, negative.

Supplementary Table III. Morphological and Microscopic characters of isolated fungi.

Isolate	Morphological characteristics				Microscopic characteristics						
	Colony			Type	Hyphae		Spore				
	Color	shape	Back		Length (µm)	Width (µm)	Length (µm)	Width (µm)	Color	Shape	Identified fungus
PFF1	Black	Spherical and powdery	Pale colored	Septate	300	7	30	2.6	Blackish brown	Globose	<i>Aspergillus niger</i>
PFF2	Green	Wooly and circular	Yellow colored	Septate	600	9	38	3.5	Green	Globose	<i>Aspergillus flavus</i>



Supplementary Fig. 1. Phylogenetic tree showing evolutionary relationship between isolates and some references *Bacillus* strains (A); *Staphylococcus* (B); *Enterobacter* (C); *Escherichia* (D); *Ralstonia* (E); *Salmonella* (F), and *Shigella* (G) strains.