

Supplementary Table 1: Comprehensive representation of estate origin, cultivar classification, harvesting season, and processing methodology of black tea samples collected from diverse geographical regions.

Sample	Origin	Estate	Cultivar	Harvest Season	Processing
Assam	Assam	Siliguri	Camellia sinensis var. assamica	Jul–Sep	Orthodox
Bangladesh	Bangladesh	Sylhet	Camellia sinensis	Jul–Sep	Orthodox
Kerala	Kerala	Idukki	Camellia sinensis	September– November	Orthodox
Sri Lanka	Sri Lanka	Kandy	Camellia sinensis	Jul–Sep	Orthodox