

List of Biochemical and Molecular analytical, testing and training services by Dr. Amjad Hameed (MAB-1 Lab, PBGD, NIAB)

	Name of analysis/test	Sample*	Method	Test fee	Payee/end-user
Biochemical tests					
1.	Total Phenolic Content	L, S/P, S, M, T	Spectrophotometry	700	Private/public sector universities, research organizations
2.	Ascorbic Acid (vitamin C)	L, S/P, S, M, T	Spectrophotometry	500	-do-
3.	Total Flavonoid Content	L, S/P, S, M, T	Spectrophotometry	700	-do-
4.	Ascorbate Peroxidase (APx)	L, S/P, S, M, T	Spectrophotometry	500	-do-
5.	Catalase (CAT)	L, S/P, S, M, T	Spectrophotometry	400	-do-
6.	Peroxidase (POD)	L, S/P, S, M, T	Spectrophotometry	500	-do-
7.	Super oxide dismutase (SOD)	L, S/P, S, M, T	Spectrophotometry	600	-do-
8.	Esterase	L, S/P, S, M, T	Spectrophotometry	600	-do-
9.	Protease	L, S/P, S, M, T	Spectrophotometry	600	-do-
10.	Alpha Amylase	L, S/P, S, M, T	Spectrophotometry	600	-do-
11.	Total Oxidant Status (TOS)	L, S/P, S, M, T	Spectrophotometry	700	-do-
12.	Malondialdehyde (MDA) or TBARS	L, S/P, S, M, T	Spectrophotometry	500	-do-
13.	Total Antioxidant Capacity (TAC)	L, S/P, S, M, T	ABTS method Spectrophotometry	800	-do-
14.	Proline	L, S/P, S, M,	Spectrophotometry	700	-do-
15.	Glycine betain	L, S/P, S, M,	Spectrophotometry	700	-do-
16.	Glutathion S Transferase	L, S/P, S, M, T	Spectrophotometry	1000	-do-
17.	Cytochrome P-450	L, S/P, S, M, T	Spectrophotometry	1000	-do-
18.	I. Chlorophyll a II. Chlorophyll b III. Total Chlorophyll	Leaf, any crop	Spectrophotometry	500	-do-
19.	Total Carotenoids	L, S/P, S, M, T	Spectrophotometry	500	-do-
20.	Lycopene	L	Spectrophotometry	500	-do-
21.	Pro vitamin a (β -carotene)	L, S/P, S, M, T	Spectrophotometry	500	-do-
22.	<i>In- Vitro</i> Anti-Diabetic Activity	L, S etc	Spectrophotometry	750	Private pharma companies,

					Private/public sector universities, research organizations
23.	<i>In- Vitro</i> Anti-Inflammatory	L, S etc	Spectrophotometry	750	-do-
24.	Total soluble protein	L, S/P, S, M,	Spectrophotometry	200	Private/public sector universities, research organizations
25.	Albumins	L, S/P, S, M,	Spectrophotometry	200	-do-
26.	Globulins	L, S/P, S, M,	Spectrophotometry	200	-do-
27.	Salt Soluble Proteins	L, S/P, S, M,	Spectrophotometry	200	-do-
28.	Hordein	L, S/P, S, M,	Spectrophotometry	200	-do-
29.	Total sugars Reducing sugars Non-reducing sugars	L, S/P, S, M,	Spectrophotometry	500	-do-
30.	Starch content	L, S,	Spectrophotometry	500	-do-
31.	Tannin	L, S/P, S, M,	Spectrophotometry	500	-do-
32.	Phytic-acid	L, S/P, S, M,	Spectrophotometry	800	-do-
33.	Total free amino acids	L, S/P, S, M,	Spectrophotometry	500	-do-
34.	Phosphorous	leaf	Spectrophotometry	700	-do-
35.	Colour	Fruit/vegetables etc	Spectrophotometry	250	Importers, exporters, Private/public sector universities, research organizations
Molecular tests/services					
36.	DNA fingerprinting (per primer/DNA marker)	L, S	Qualitative PCR	5000	Private seed companies, importers, exporters, Private/public sector universities, research organizations
37.	DNA isolation	Any crop	CTAB method	500	-do-
38.	Protein isolation	Any crop	Buffer/centrifugation	200	-do-
39.	DNA/ RNA/ protein concentration	Any crop	Spectrophotometry	150	Private/public sector

					universities, research organizations
40.	RAPD marker analysis (per primer/DNA marker)	Any crop	Qualitative PCR	5000	-do-
41.	Agarose gel electrophoresis of DNA/PCR product	Any crop	Agarose gel	2000	-do-
42.	PAGE of DNA/PCR product	Any crop	PAGE	1000	-do-
43.	SDS-PAGE for proteins	Any crop	PAGE	1000	
44.	Native-PAGE for proteins	Any crop	PAGE	1000	
45.	Basmati purity test (per primer/DNA marker)	Rice, seed	Qualitative PCR	7000	Private seed companies, importers, exporters, Private/public sector universities, research organizations
46.	GMO test (1 genetic element)	Any crop	Qualitative PCR	7000	-do-
47.	Aroma gene test	Rice, seed	Qualitative PCR	7000	-do-
	Other testing services				
48.	Seed Germination test	Any crop/seed	As per ISTA rules 2021	1500	Private seed companies, importers, exporters, Private/public sector universities, research organizations
49.	Seed moisture content	Any crop/seed	As per ISTA rules 2021	1500	-do-
50.	Seed vigour	Any crop/seed	As per ISTA rules 2021	1500	do-
51.	UV/VS spectra	Nano-particles, dosimetry films	Spectrophotometry	300	Private/public sector universities, research organizations
Computational biology and bioinformatics analytical services					

52.	Descriptive analysis and ANOVA	Replicated arranged data	XL-STAT	5000	-do-
53.	Test of significance (Tukey's, LSD, HSD, DMRT etc)	Replicated arranged data	XL-STAT	5000	do-
54.	Cluster and PCA	Mean Arranged data	XL-STAT	5000	-do-
55.	Association mapping and population structure analysis	Data files	TASSEL, Structure etc	10000	-do-
Specialized training services					
56.	Certified Training on DNA/RNA/protein isolation and quantification (for research/DNA fingerprinting/diagnostic purposes etc)	Per person	DNA/RNA/protein isolation & Quantification	2500 per week	Private seed companies, importers, exporters, Private/public sector universities, research organizations
57.	Certified Training on Qualitative PCR and agarose gel electrophoresis (for research/DNA fingerprinting/diagnostic purposes etc)	Per person	PCR Agarose gel electrophoresis Gel Documentation and analysis	2500 per week	Private seed companies, importers, exporters, Private/public sector universities, research organizations

***L: Leaf, S/P: Serum/Plasma, S: Seed, M: Milk, T: Tissue**

Prepared by
Dr. Amjad Hameed
Principal Scientist
03326681183

Checked by
Dr. Muhammad Yussouf Saleem
Head P.B.G. Division

Approved by
Dr. Tariq Mahmud Shah (DCS)
Director, NIAB