

Final Supplementary file for PST No. 5705

Table 1. Morphological & Cultural studies of *Azotobacter* isolates

Sl.no	Isolate	Shape	Elevation	Pigmentation	Margin	Consistency
1	Azt 1	Irregular	Convex	Dark brown	Undulate	Opaque
2	Azt 2	Irregular	Flat	Light brown	Curled	Translucent
3	Azt 3	Irregular	Flat	Brown	Undulate	Translucent
4	Azt 4	Irregular	Flat	Grey brown	Undulate	Opaque
5	Azt 5	Irregular	Convex	Light brown	Undulate	Opaque
6	Azt 6	Irregular	Umbonate	Yellow brown	Undulate	Translucent
7	Azt 7	Irregular	Umbonate	Yellow brown	Curled	Translucent
8	Azt 8	Irregular	Flat	Light brown	Curled	Translucent
9	Azt 9	Irregular	Umbonate	White yellow	Curled	Translucent
10	Azt 10	Regular	Convex	Yellow brown	Undulate	Opaque
11	Azt 11	Regular	Flat	Yellow brown	Curled	Opaque
12	Azt 12	Irregular	Umbonate	Milky white	Curled	Opaque
13	Azt 13	Irregular	Raised	Brown	Curled	Opaque
14	Azt 14	Irregular	Umbonate	Light brown	Curled	Translucent
15	Azt 15	Irregular	Convex	Pale yellow	Undulate	Translucent
16	Azt 16	Irregular	Convex	Pale yellow	Undulate	Translucent
17	Azt 17	Irregular	Flat	Yellow brown	Undulate	Translucent
18	Azt 18	Irregular	Convex	Grey black	Undulate	Opaque
19	Azt 19	Irregular	Umbonate	Pale brown	Curled	Opaque
20	Azt 20	Irregular	Convex	Light brown	Undulate	Opaque
21	Azt 21	Irregular	Umbonate	Yellow brown	Undulate	Translucent
22	Azt 22	Irregular	Umbonate	Yellow brown	Curled	Translucent
23	Azt 23	Irregular	Pulvinate	Pale yellow	Curled	Translucent
24	Azt 24	Irregular	Flat	Light brown	Curled	Translucent
25	Azt 25	Irregular	Flat	Brown	Undulate	Translucent
26	Azt 26	Irregular	Flat	Grey brown	Undulate	Opaque
27	Azt 27	Irregular	Convex	Light brown	Undulate	Opaque
28	Azt 28	Irregular	Umbonate	Yellow brown	Undulate	Translucent
29	Azt 29	Irregular	Umbonate	Yellow brown	Curled	Translucent
30	Azt 30	Irregular	Flat	Light brown	Curled	Translucent
31	Azt 31	Irregular	Umbonate	White yellow	Curled	Translucent
32	Azt 32	Regular	Convex	Yellow brown	Undulate	Opaque
33	Azt 33	Regular	Flat	Yellow brown	Curled	Opaque
34	Azt 34	Irregular	Umbonate	Milky white	Curled	Opaque
35	Azt 35	Irregular	Raised	Brown	Curled	Opaque
36	Azt 36	Irregular	Umbonate	Light brown	Curled	Translucent
37	Azt 37	Irregular	Convex	Pale yellow	Undulate	Translucent
38	Azt 38	Regular	Convex	Yellow brown	Undulate	Opaque
39	Azt 39	Regular	Flat	Yellow brown	Curled	Opaque
40	Azt 40	Irregular	Umbonate	Light brown	Curled	Translucent
41	Azt 41	Irregular	Flat	Brown	Undulate	Translucent
42	Azt 42	Regular	Flat	Yellow brown	Curled	Opaque
43	Azt 43	Regular	Flat	Yellow brown	Curled	Opaque
44	Azt 44	Irregular	Umbonate	Milky white	Curled	Opaque
45	Azt 45	Irregular	Raised	Brown	Curled	Opaque
46	Azt 46	Irregular	Raised	Brown	Curled	Opaque
47	Azt 47	Irregular	Umbonate	Light brown	Curled	Translucent
48	Azt 48	Irregular	Convex	Dark brown	Undulate	Opaque

49	Azt 49	Irregular	Convex	Grey black	Undulate	Opaque
50	Azt 50	Regular	Convex	Yellow brown	Undulate	Opaque
51	Azt 51	Irregular	Flat	Brown	Undulate	Translucent
52	Azt 52	Irregular	Flat	Grey brown	Undulate	Opaque
53	Azt 53	Irregular	Convex	Pale yellow	Undulate	Translucent
54	Azt 54	Irregular	Umbonate	Light brown	Curled	Translucent
55	Azt 55	Irregular	Flat	Brown	Undulate	Translucent
56	Azt 56	Irregular	Flat	Grey brown	Undulate	Opaque
57	Azt 57	Irregular	Flat	Grey brown	Undulate	Opaque
58	Azt 58	Regular	Flat	Yellow brown	Curled	Opaque
59	Azt 59	Irregular	Umbonate	Milky white	Curled	Opaque
60	Azt 60	Irregular	Raised	Brown	Curled	Opaque
61	Azt 61	Irregular	Umbonate	Light brown	Curled	Translucent
62	Azt 62	Regular	Convex	Yellow brown	Undulate	Opaque
63	Azt 63	Irregular	Flat	Brown	Undulate	Translucent
64	Azt 64	Irregular	Flat	Grey brown	Undulate	Opaque
65	Azt 65	Irregular	Convex	Pale yellow	Undulate	Translucent
66	Azt 66	Irregular	Umbonate	Light brown	Curled	Translucent
67	Azt 67	Irregular	Umbonate	Light brown	Curled	Translucent
68	Azt 68	Irregular	Flat	Brown	Undulate	Translucent
69	Azt 69	Regular	Flat	Yellow brown	Curled	Opaque
70	Azt 70	Irregular	Umbonate	Milky white	Curled	Opaque
71	Azt 71	Regular	Flat	Yellow brown	Curled	Opaque
72	Azt 72	Irregular	Umbonate	Milky white	Curled	Opaque
73	Azt 73	Irregular	Raised	Brown	Curled	Opaque
74	Azt 74	Irregular	Umbonate	Light brown	Curled	Translucent
75	Azt 75	Irregular	Flat	Grey brown	Undulate	Opaque
76	Azt 76	Irregular	Convex	Pale yellow	Undulate	Translucent
77	Azt 77	Irregular	Umbonate	Light brown	Curled	Translucent
78	Azt 78	Regular	Flat	Yellow brown	Undulate	Translucent
79	Azt 79	Irregular	Umbonate	Yellow brown	Curled	Translucent
80	Azt 80	Irregular	Flat	Light brown	Curled	Translucent
81	Azt 81	Irregular	Umbonate	White yellow	Curled	Translucent
82	Azt 82	Irregular	Flat	Grey brown	Undulate	Opaque
83	Azt 83	Regular	Raised	Brown black	Undulate	Opaque
84	Azt 84	Regular	Flat	Yellow brown	Undulate	Translucent
85	Azt 85	Irregular	Convex	Dark brown	Undulate	Opaque

Table 2. Biochemical studies of *Azotobacter* isolates

Sl.no.	Isolate	IND*	GLU	LAC	CAT	SH	MR	CIT	VP	GEL
1	Azt 1	+	+	-	+	+	-	-	+	-
2	Azt 2	+	+	-	+	+	+	-	-	-
3	Azt 3	+	+	-	+	+	+	-	-	-
4	Azt 4	+	+	-	+	+	-	-	+	-
5	Azt 5	+	+	-	+	+	+	-	-	-
6	Azt 6	+	+	-	+	+	+	-	-	-
7	Azt 7	+	+	-	+	+	+	-	-	-
8	Azt 8	+	+	-	+	+	-	-	+	-
9	Azt 9	+	+	-	+	+	+	-	-	-
10	Azt 10	+	+	-	+	+	+	-	-	-
11	Azt 11	+	+	-	+	+	-	-	+	-
12	Azt 12	+	+	-	+	+	-	-	+	-
13	Azt 13	+	+	-	+	+	+	-	-	-
14	Azt 14	+	+	-	+	+	-	-	+	-
15	Azt 15	+	+	-	+	+	+	-	-	-
16	Azt 16	+	+	-	+	+	-	-	+	-
17	Azt 17	+	+	-	+	+	+	-	-	-
18	Azt 18	+	+	-	+	+	-	-	+	-
19	Azt 19	+	+	-	+	+	+	-	-	-
20	Azt 20	+	+	-	+	+	-	-	+	-
21	Azt 21	+	+	-	+	+	+	-	-	-
22	Azt 22	+	+	-	+	+	-	-	+	-
23	Azt 23	+	+	-	+	+	+	-	-	-
24	Azt 24	+	+	-	+	+	-	-	+	-
25	Azt 25	+	+	-	+	+	+	-	-	-
26	Azt 26	+	+	-	+	+	-	-	+	-
27	Azt 27	+	+	-	+	+	+	-	-	-
28	Azt 28	+	+	-	+	+	-	-	+	-
29	Azt 29	+	+	-	+	+	+	-	-	-
30	Azt 30	+	+	-	+	+	-	-	+	-
31	Azt 31	+	+	-	+	+	-	-	+	-
32	Azt 32	+	+	-	+	+	-	-	+	-
33	Azt 33	+	+	-	+	+	+	-	-	-
34	Azt 34	+	+	-	+	+	-	-	+	-
35	Azt 35	+	+	-	+	+	+	-	-	-
36	Azt 36	+	+	-	+	+	-	-	+	-
37	Azt 37	+	+	-	+	+	+	-	-	-
38	Azt 38	+	+	-	+	+	+	-	-	-
39	Azt 39	+	+	-	+	+	-	-	+	-
40	Azt 40	+	+	-	+	+	+	-	-	-
41	Azt 41	+	+	-	+	+	-	-	+	-
42	Azt 42	+	+	-	+	+	+	-	-	-
43	Azt 43	+	+	-	+	+	+	-	-	-
44	Azt 44	+	+	-	+	+	+	-	-	-
45	Azt 45	+	+	-	+	+	-	-	+	-
46	Azt 46	+	+	-	+	+	+	-	-	-
47	Azt 47	+	+	-	+	+	+	-	-	-
48	Azt 48	+	+	-	+	+	+	-	-	-
49	Azt 49	+	+	-	+	+	-	-	+	-
50	Azt 50	+	+	-	+	+	+	-	-	-

51	Azt 51	+	+	-	+	+	-	-	+	-
52	Azt 52	+	+	-	+	+	+	-	-	-
53	Azt 53	+	+	-	+	+	-	-	+	-
54	Azt 54	+	+	-	+	+	+	-	-	-
55	Azt 55	+	+	-	+	+	-	-	+	-
56	Azt 56	+	+	-	+	+	+	-	-	-
57	Azt 57	+	+	-	+	+	-	-	+	-
58	Azt 58	+	+	-	+	+	+	-	-	-
59	Azt 59	+	+	-	+	+	-	-	+	-
60	Azt 60	+	+	-	+	+	+	-	-	-
61	Azt 61	+	+	-	+	+	-	-	+	-
62	Azt 62	+	+	-	+	+	+	-	-	-
63	Azt 63	+	+	-	+	+	-	-	+	-
64	Azt 64	+	+	-	+	+	-	-	+	-
65	Azt 65	+	+	-	+	+	+	-	-	-
66	Azt 66	+	+	-	+	+	-	-	+	-
67	Azt 67	+	+	-	+	+	+	-	-	-
68	Azt 68	+	+	-	+	+	-	-	+	-
69	Azt 69	+	+	-	+	+	+	-	-	-
70	Azt 70	+	+	-	+	+	-	-	+	-
71	Azt 71	+	+	-	+	+	-	-	+	-
72	Azt 72	+	+	-	+	+	+	-	-	-
73	Azt 73	+	+	-	+	+	+	-	-	-
74	Azt 74	+	+	-	+	+	+	-	-	-
75	Azt 75	+	+	-	+	+	-	-	+	-
76	Azt 76	+	+	-	+	+	+	-	-	-
77	Azt 77	+	+	-	+	+	-	-	+	-
78	Azt 78	+	+	-	+	+	+	-	-	-
79	Azt 79	+	+	-	+	+	-	-	+	-
80	Azt 80	+	+	-	+	+	+	-	-	-
81	Azt 81	+	+	-	+	+	-	-	+	-
82	Azt 82	+	+	-	+	+	+	-	-	-
83	Azt 83	+	+	-	+	+	-	-	+	-
84	Azt 84	+	+	-	+	+	+	-	-	-
85	Azt 85	+	+	-	+	+	+	-	-	-

IND* - Indole production, GLU- Glucose, LAC- Lactose, CAT- Catalase, SH- Starch Hydrolysis, MR- Methyl Red test, CIT- Citrate Utilisation, VP- Vogues Proskavur test, GEL- Gelatin Utilisation

“+” = Indicate positive, “-” = Indicative negative

Figure 1. Bio efficacy studies of *Azotobacter* against *Fusarium oxysporum* f. sp. *lini* using dual culture assay – Quadrant streak method.



Figure 2. Bio efficacy studies of *Azotobacter* against *Fusarium oxysporum* f. sp. *ciceris* using dual culture assay – Quadrant streak method.

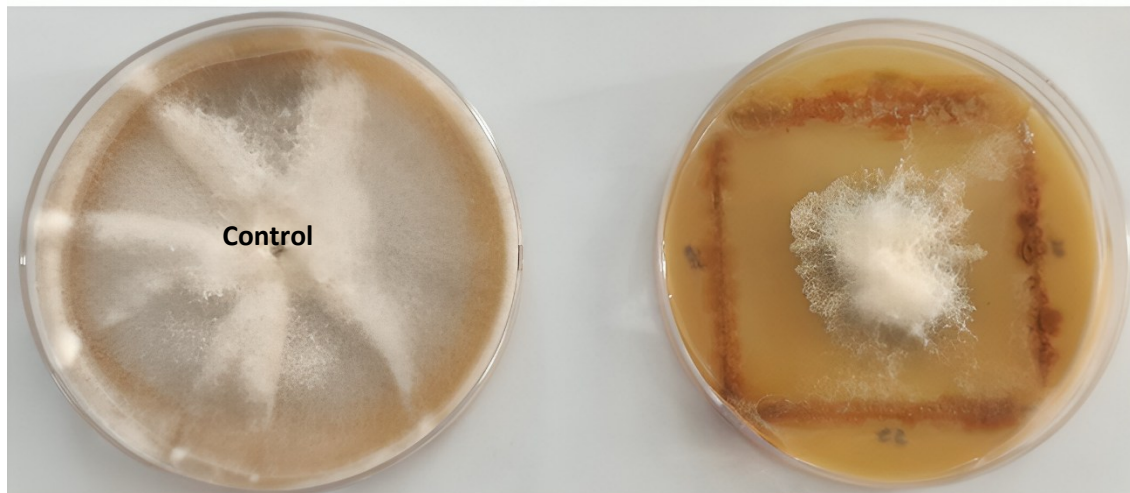


Figure 3. Bio efficacy studies of *Azotobacter* against *Aspergillus flavus* using dual culture assay – Quadrant streak method.

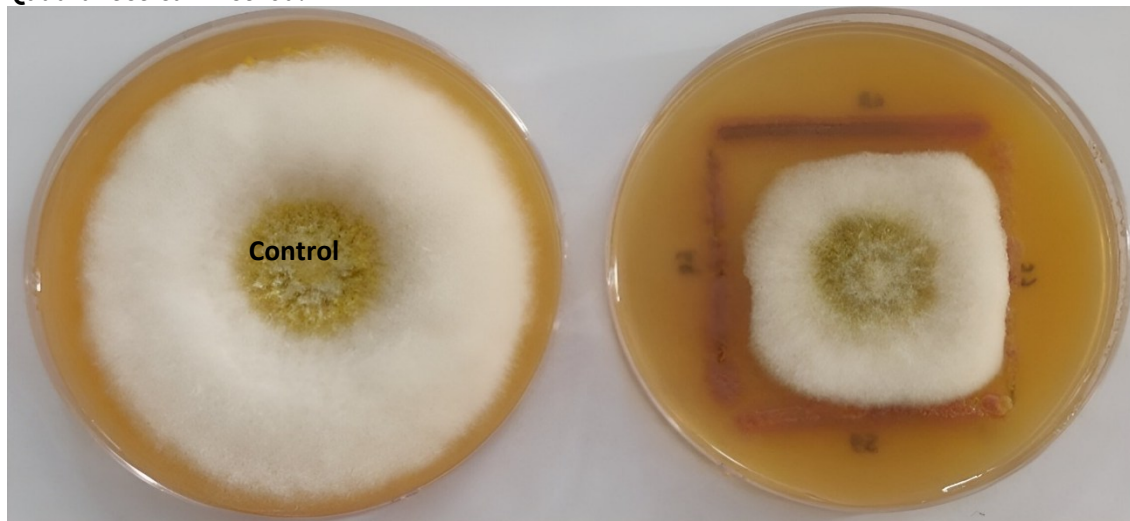


Figure 4: Nitrogen Fixation of *Azotobacter* isolates

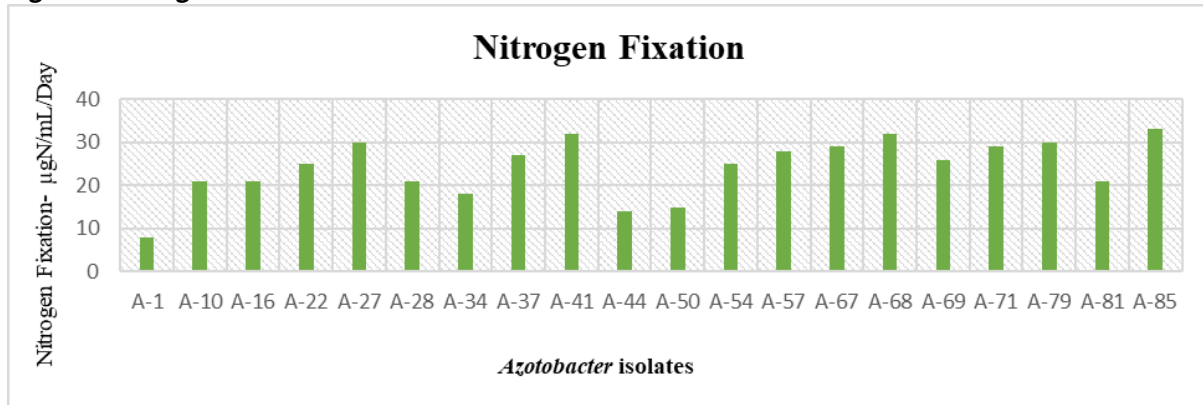


Figure 5: IAA production of *Azotobacter* isolates

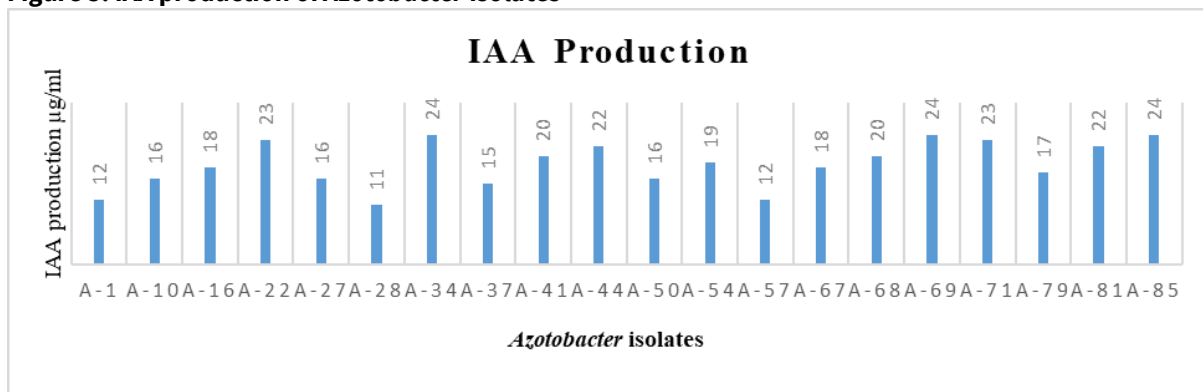


Figure 6: Gibberellic Acid Production of *Azotobacter* isolates

