Biological Forum – An International Journal **15(5): 56-61(2023)**

ISSN No. (Print): 0975-1130
ISSN No. (Online): 2249-3239

Stability Study for Yield and its Contributive Traits in Sesame (*Sesamum indicum* L.)

Uikey Kirtikumar N.[1*], Deshmukh D.T.[2], Mohurle N.A.[1], Vaidya E.R.[3], Gomashe S.S.[4], Durge D.V.[5] and Walke R.D.[6]

[1]Ph.D. Scholar, Department of Agricultural Botany, Dr. PDKV, Akola (Maharashtra), India.
[2]Associate Professor, Department of Agricultural Botany, Dr. PDKV, Akola (Maharashtra), India.
[3]Senior Research Scientist, Pulse Research Unit, Dr. PDKV, Akola (Maharashtra), India.
[4]Officer-In-Charge, ICAR-NBPGR RS, Akola (Maharashtra), India.
[5]Professor, Department of Agricultural Botany, Dr. PDKV, Akola (Maharashtra), India.
[6]Associate Professor, Department of Economics and Statistics, Dr. PDKV, Akola (Maharashtra), India.

(Corresponding author: Uikey Kirtikumar N.)*
(Received: 05 March 2023; Revised: 15 April 2023; Accepted: 25 April 2023; Published: 20 May 2023)
(Published by Research Trend)

ABSTRACT: Sesame is important oilseed crop. Due to fluctuation in the environments the yield and productivity badly affected in sesame. Present investigation is useful to develop the new varieties using stable genotypes as a parent in crossing programme. Therefore, sixty sesame genotypes with 3 checks, AKT-64, AKT-101 and PKV-NT-11 for eleven quantitative characters assessed at three environments in season summer 2018-19 to estimate the stability performance using Eberhart and Russel model (1966). The g x e (linear) interaction exhibited significance for the characters days to 50% flowering, days to maturity, plant height, number of capsules plant^{-1} and seed yield plant^{-1} and significant for number of branches plant^{-1}. The environment + (G × E) remained highly significant for all traits excluding capsule breadth, length of capsule and oil content. Significance of environment (linear) constituent for all the traits checks the observations of broadly differing environments. Among sixty germplasm, genotype IC- 203884 (16) for days to 50% flowering and seed yield plant^{-1} (g) and genotype DS-46-3 (51) for number of capsules plant^{-1}, number of seed capsule^{-1} and seed yield plant^{-1} (g) were identified stable.

Keywords: Sesame, germplasm, stability analysis, phenotypic stability G × E interaction.

INTRODUCTION

Sesame (*Sesamum indicum* L.), also known as Til, is one of the significant oilseed crop all over the world. It is usually known as "Queen of oilseeds". It was cultivated and domesticated in Indian subcontinent during Harappa and Anatolian eras (Bedigian and Harian 1986). India considered as the basic centre of origin (Balasurbramanian and Palaniappan 1999). Sesame plays vital role as manufacturing food crop since its high nutritional worth. The sesame contains 40 to 56% oil, which contains weighty amount of oleic and linoleic acids. It is well known that seed yield is quantitative character which is highly influenced by environmental factors. Sesame is the maximum ignored oil seed crop grown on marginal lands under poor management practices consequential low yields. It is fine recognized that seed yield is quantitative character and highly influenced by environmental factors. Varietal adaptability to environmental variation is highly crucial for stabilization of production over both region and year. The demand for sesame seed is growing every year consequently selection of high yielding genotypes with wider adaptability be going to very valuable and assistance in increasing the production. Varieties for different regions of predictable environmental conditions or identifying stable varieties over environments are the remedy to exploit the g × e interaction (Verma and Jay Lal Mahto 1994). G × E interactions are known to interfere with evaluation of genotype and diminishes the growth of selection in plant breeding programs as the genetic nature of a genotype is masked (Comstock and Moll 1963), these interactions are importance in developing improved varieties and rationalization of procedure for future genetic improvement in crop plants. Thus, the study of g × e interaction using Eberhart and Russel (1966) techniques would lead to effective identification of stable genotypes which either be released for commercial cultivation or to be used in future breeding program.

MATERIAL AND METHODS

The research material includes sixty indigenous and exotic germplasm of sesame together with three checks AKT-64, AKT-101 and PKV-NT-11 assessed at three environments during season summer 2018-19 at trial field of Department of Agricultural Botany, Dr. P.D.K.V. Akola, Head of Section of Agricultural Botany, College of Agriculture, Nagpur and Agriculture Technical School, Selsura, Dist. Wardha of Maharashtra. Randomised Block Design implemented with three replications. Each genotype raised up in 3 rows of 3 metre long, with a spacing of 30cm between rows and 10cm between plants. Suggested package of practices was followed to raise good and healthy crop stand. Five experimental plants were randomly selected for recording the observations *viz.*, plant height, number of branches plant^{-1}, number of capsules plant^{-1}, capsule breadth, length of capsule, 1000-seed weight, number of seed capsule^{-1}, oil content and seed yield plant^{-1}. Days to 50% flowering and days to maturity noted on plot basis. The overall mean was exposed to statistical analysis as the pooled data. Stability analysis was carried out using Eberhart and Russel (1966). Statistical analysis was completed using INDOSTAT program.

RESULT AND DISCUSSION

The outcome of pooled analysis of variance for stability explained that mean sum of squares due to genotypes originated significant for the characters *viz*., days to 50% flowering, days to maturity, plant height, number of branches plant^{-1}, number of capsules plant^{-1}, oil content and seed yield plant^{-1} representing that sufficient variability presents among genotypes. Environment showed significant differences for all the traits. The E + (G × E) remained highly significant except capsule breadth, length of capsule and oil content. Significance of environment (linear) constituent for all the traits confirms the observations of widely differing environments. The g × e (linear) interaction constituent showed highly significance for the characters days to 50% flowering, days to maturity, plant height, number of capsules plant^{-1} and seed yield plant^{-1} and significant for number of branches plant^{-1} recommended that, the genotypes greatly fluctuated to different environments. The significancy of pooled deviation component indicating the magnitude of non-linear component in the g × e interaction (Table 1). The result accordance with Anuradha and Reddy (2005); Kumaresan and Nadarajan (2005); Sumalatha *et al.* (2008); Parmar *et al*. (2018).

Environmental index discloses the suitability of an environment. The positive values of environmental index indicate suitability of environment for those characters. Based upon the positive values of environmental index, environment-1 found suitable for the characters length of capsule, 1000-seed weight, number of seed capsule^{-1} and oil content. Environment-2 was suitable for all characters under studied. Environment-3 was favourable for days to 50% flowering, days to maturity, number of branches plant^{-1} (Table 2). Similar result found by Anuradha and Reddy (2005) for the characters days to maturity, length of capsule, 1000-seed weight and seed yield plant^{-1} in environment-1. In environment-2, it was for plant height, number of branches plant^{-1}, number of seed capsule^{-1} and seed yield plant^{-1}. Plant height, days to maturity, number of capsules plant^{-1}, length of capsule, number of seed capsule^{-1}, 1000-seed weight and seed yield plant^{-1} in environment-3.

In interpretation of the results of the existing investigation, mean, regression coefficient (bi) and deviation from regression (S^2 di) was considered as the measure of stability (Table 3). In conformity with Eberhart and Russell (1966) model, genotype should have following criteria for respective adaptability.

1. A genotype with high mean value compares to general mean value, near unit regression coefficient (bi=1) and non-significant and least deviation from regression (S^2 di) is said to be a stable genotype i.e., average stability.
2. When a genotype displayed high mean with greater than unity regression (bi>1) and smallest deviation from regression must be considered for favourable environmental condition *i.e.*, below average stability.
3. If a genotype showed high mean with less than unity regression (bi<1) and smallest deviation from regression should be recommended for poor environmental conditions *i.e.*, above average stability.

Days to 50% flowering. The genotypes IC- 203884 (16) and IC- 203959 (26) performs well under average environmental condition *i.e.*, average stability. The genotypes EC- 370430 (11) and NIC-8600-A (39) noted stable for favourable environmental condition *i.e.*, below average stability. The genotypes EC- 370382 (9) and IC- 203920 (22) perform well under poor environmental condition *i.e.*, above average stability. Similar result was found by Sumalatha *et al.* (2008); Raikwar (2016).

Days to maturity. The genotype EC- 370402 (9), EC-370455 (14) and GRT-839-A (38) found to be stable with low mean with near to unit regression coefficient and least deviation from regression. The genotypes EC-370430(11), IC-203931 (23), IC- 204062 (36) and IC-204063 (37) found to be stable for favourable environmental condition. The genotypes IC- 203888 (19) and IC-204060 (35) perform well under poor environmental condition *i.e.*, above average stability. Complementary result observed by Anuradha and Reddy (2005); Raikwar (2016).

Plant height (cm). The genotype IC- 203892 (21) and TKG-15-2-2 (49) found stable across average environmental condition. The genotypes GRT-8622 (47) was reported below average stability. Whereas, the genotypes IC- 203883 (15) and AKT-101 (59) perform well under poor environmental condition *i.e.*, above average stability. The similar result found by Anuradha and Reddy (2005); Bhandekar and Kumar (2010).

Number of branches per plant. The genotypes EC-370442 (12), IC- 203954 (24) and IC- 204060 (35) recognised average stability. The genotypes IC- 204062 (36) noted stable for favourable environmental condition, while the genotypes and NIC-54-164-B (43) perform well under poor environmental condition. Similar result reported by Raikwar (2016); Bhandekar and Kumar (2010).

Number of capsules per plant. The genotypes DS-46-3 (51) and AKT-64 (58) found to be stable over the environments with high mean, near to unit regression coefficient and least deviation from regression. The genotypes EC- 370382 (9) and SI-2039-A (44) reported stable for favourable environmental condition. The genotypes IC- 203883 (15) and IC- 203959 (26) recorded to be stable for favourable environmental condition. The result accordance with this reported by Rao *et al*. (2015); Raikwar (2016).

Table 1: Pooled analysis of variance for stability for yield and its contributing characters in sesame (*Sesamum indicum* L.).

Sr. No.	Source of variation	d.f	Dyas to 50 % flowering	Days to maturity	Plant height (cm)	Number of branches plant^{-1}	Number of capsules plant^{-1}	Capsule breadth (mm)	Length of capsule (cm)	1000 Seed weight (g)	Number of seed capsule^{-1}	Oil content (%)	Seed yield plant^{-1} (g)
			Mean sum of square										
1.	Genotype	59	4.385**	10.632**	90.888**	0.155**	64.355**	0.341	0.025	0.003	15.908	26.032**	3.419**
2.	Environment	2	454.78**	5825.29**	35447.86**	0.329*	4960.69**	7.21**	0.24**	0.05**	1521.44**	27.37**	216.30**
3.	Environment+ (Genotype × Environment)	120	9.293**	107.570**	642.843**	0.106*	128.208**	0.344	0.024	0.004**	38.072**	1.694	5.852**
4.	Environment (linear)	1	909.576**	11650.599**	70895.724**	0.659**	9921.394**	14.430**	0.499**	0.111**	3042.897**	54.760**	432.603**
5.	Genotype × Environment (linear)	59	2.274**	14.929**	63.126**	0.120*	68.357**	0.132	0.013	0.003	7.085	1.112	2.946**
6.	Pooled deviation	60	1.190	6.284	42.017**	0.083**	23.841**	0.317**	0.027**	0.002*	18.461**	1.381**	1.596**
7.	Pooled error	354	1.071	5.592	25.472	0.029	11.128	0.140	0.009	0.002	4.887	0.037	0.370

* Significant at 5 % level ; ** Significant at 1 % level

Table 2: Environmental index (Ij) values in respect to different quantitative characters in sesame (*Sesamum indicum* L.).

Sr. No.	Characters	E-1	E-2	E-3
1.	Dyas to 50 % flowering	-2.83	0.15	2.67
2.	Days to maturity	-11.22	3.95	7.27
3.	Plant height (cm)	-3.73	25.95	-22.23
4.	Number of branches plant^{-1}	-0.08	0.06	0.02
5.	Number of capsules plant^{-1}	-4.30	10.45	-6.14
6.	Capsule breadth (mm)	-0.10	0.39	-0.29
7.	Length of capsule (cm)	0.02	0.05	-0.07
8.	1000 Seed weight (g)	0.03	0.01	-0.03
9.	Number of seed capsule^{-1}	0.71	4.65	-5.35
10.	Oil content %	0.52	0.25	-0.76
11.	Seed yield plant^{-1} (g)	0.52	2.11	-1.58

Table 3: Stability parameters for yield and its contributing characters in sesame (*Sesamum indicum* L.).

Sr. No.	Accession number	Days to 50% flowering			Days to maturity			Plant height (cm)			Number of branches plant^{-1}			Number of capsules plant^{-1}		
		Mean	bi	S^2di	Mean	bi	S^2di	Mean	bi	S^2di	Mean	bi	S^2di	Mean	bi	S^2di
1.	EC- 370343	37.44	1.54	3.02	97.11	1.27	12.02	92.42	1.23	30.66	2.11	3.75*	-0.03	28.42	0.81	9.03
2.	EC- 370345	37.67	0.98	-0.69	98.89	0.97	0.77	93.93	1.47	47.94	1.78	-1.24	-0.03	34.89	1.33	-8.92
3.	EC- 370354	36.78	1.25	2.92	94.56	0.93	12.17	74.38	0.79	42.40	1.76	1.08	0.07	26.57	0.64	42.06 *
4.	EC- 370362	36.78	1.21*	-1.09	95.44	1.05	-1.52	83.38	0.95	9.62	2.00	4.98	-0.03	31.60	1.04	28.14
5.	EC- 370371	38.67	1.41	-0.17	97.56	0.86	13.93	84.36	1.09	-9.58	1.71	3.98	-0.02	29.91	0.56	-10.98
6.	EC- 370372	37.78	1.26	0.32	97.78	1.11	-5.68	83.84	0.83	-25.41	1.90	1.39	-0.02	27.66	1.06	-2.51
7.	EC- 370373	37.56	0.99	2.88	98.44	1.10	5.39	92.07	1.06	-25.76	2.04	2.17	0.06	34.60	1.73	-6.52
8.	EC- 370374	37.67	1.21	-1.05	98.67	1.09	-4.19	88.18	1.28	18.09	1.84	5.17	0.13 *	40.60	1.85*	-11.22
9.	EC- 370382	36.56	0.73	-0.93	96.56	0.96	-4.03	84.07	0.77	40.31	2.07	-1.34	0.01	33.07	1.23	1.28
10.	EC- 370402	37.11	1.06	3.40 *	98.22	1.26	-4.57	92.16	0.54	14.71	2.12	-4.10	-0.01	36.56	0.45	53.21 *
11.	EC- 370430	37.11	1.16	-0.88	96.00	1.09	-4.88	83.33	0.90	-25.79	1.80	4.27	0.02	35.22	1.18	-5.82
12.	EC- 370442	37.67	1.20	-0.01	97.89	0.90	7.25	88.71	0.86	89.05*	2.16	-0.90	0.00	27.91	0.62	-9.15
13.	EC- 370450	36.56	1.37	1.98	95.56	1.04	21.17*	89.27	1.23	81.67*	1.84	4.62*	-0.03	32.07	1.10	-8.66
14.	EC- 370455	36.00	1.28	-1.07	96.56	0.96	-5.00	83.58	0.69	55.41	1.99	0.65	0.00	28.91	0.50*	-11.25

15.	IC- 203883	37.00	0.84	-0.15	96.67	0.81	5.30	86.69	0.95	-16.61	1.96	-2.95	0.06	32.73	0.56	5.53
16.	IC- 203884	37.22	1.04	-0.52	97.67	1.13	0.28	86.16	1.18*	-26.30	1.78	4.38	-0.02	32.16	1.35	-10.12
17.	IC- 203886	38.11	1.38	0.37	95.00	0.94	-2.43	83.91	0.94	-9.39	1.87	1.27	-0.01	29.40	1.49	17.40
18.	IC- 203887	36.00	1.14	-0.71	94.56	1.24	18.65*	88.02	0.94	106.86*	2.09	3.46	0.38**	31.00	0.65	68.84 **
19.	IC- 203888	36.67	1.39	-0.65	95.78	0.82	1.04	78.73	1.24*	-26.29	2.13	-1.27	-0.01	29.73	0.18	-4.52
20.	IC- 203889	37.22	0.84	-0.91	98.00	0.98	0.24	88.93	0.77	60.32	1.67	-3.01	-0.02	28.47	0.11	30.20
21.	IC- 203892	37.67	0.85	-1.07	98.44	1.04	-4.65	88.60	1.01	-16.78	1.80	1.50	-0.03	30.23	1.01	3.36
22.	IC- 203920	36.89	0.79	-1.10	97.56	1.13	-5.55	93.64	1.50	164.83**	2.10	2.45	-0.01	30.44	1.52	-10.44
23.	IC- 203931	36.56	1.7	-1.04	96.44	1.13	-5.43	92.93	1.05	36.58	1.82	2.58	0.04	31.62	0.86	-3.30
24.	IC- 203954	37.11	1.29	0.49	97.33	1.25	1.71	82.07	0.98	16.57	2.36	0.84	0.02	40.67	1.63	37.81 *
25.	IC- 203955	37.78	1.29	0.49	99.22	1.22	-4.89	81.02	0.91	-10.92	1.87	4.58	0.01	29.78	1.36	-7.82
26.	IC- 203959	36.78	1.03	-0.99	98.89	1.20	-2.89	84.40	0.85	96.13*	1.84	1.93	0.13 *	34.33	0.58	10.19
27.	IC- 204037	37.44	1.39	-0.94	98.44	1.06	-5.06	98.47	1.35	-19.56	2.11	-2.67	0.07	30.29	0.58	-10.90
28.	IC- 204045	38.22	0.73	-0.93	98.89	1.24	-5.63	90.49	0.62	18.65	2.22	-1.37*	-0.03	36.91	0.68	46.41 *
29.	IC- 204047	38.56	0.65	1.53	98.11	0.97	5.96	83.62	1.15	34.95	2.29	-4.61*	-0.03	28.78	0.39 *	-11.26
30.	IC- 204049	37.89	1.32	0.69	98.56	1.14	14.04	85.33	1.41	27.51	1.93	0.15	0.44**	26.51	0.50	-10.42
31.	IC- 204054	37.44	1.03	-0.99	98.44	1.01	-2.17	91.89	1.28	-11.24	2.13	4.89	0.39**	27.67	0.38*	-11.09
32.	IC- 204056	38.00	0.98	-0.69	97.44	1.08	0.87	85.27	0.97	57.42	1.89	2.51	-0.02	36.11	1.79	-6.69
33.	IC- 204058	37.11	0.68	0.78	98.00	0.99	-3.74	97.00	1.28	76.80*	2.62	-8.02	0.02	45.31	1.76	103.78**
34.	IC- 204059	36.44	1.16	-0.88	98.67	1.03	-2.34	79.78	1.16	18.23	2.02	2.51	-0.02	29.11	1.18	-11.08
35.	IC- 204060	36.22	1.15	-1.09	95.11	0.87	0.34	85.62	0.89	27.85	2.07	-1.11	-0.02	30.33	0.47*	-11.11
36.	IC- 204062	35.89	1.27	-1.09	95.89	1.13	-4.93	87.27	0.79	-21.37	2.09	-1.21	0.04	28.07	0.89	31.11
37.	IC- 204063	36.56	1.55	3.73 *	95.89	1.07	4.44	77.89	0.92	-25.99	1.89	6.06	0.11 *	35.07	2.15	1.07
38.	GRT-839-A	36.89	0.48	-0.96	95.11	0.98	-4.14	83.93	0.84	-0.17	1.97	-7.67**	-0.03	33.27	-0.84	201.76**
39.	NIC-8600-A	36.89	1.14	-0.30	95.33	0.77	-5.58	84.27	1.02	-17.46	2.13	-5.78	0.04	29.56	0.06	153.93**
40.	IS-93-B	37.89	0.38	0.57	98.33	0.82	4.24	84.80	0.77	30.16	1.82	2.90	0.02	27.13	0.52	-10.87
41.	IS-24-A	37.44	1.05	0.60	96.56	0.98	-1.39	98.36	0.59	19.82	2.53	-6.41	0.08	42.87	0.67	110.09**
42.	IS-562-A	36.89	0.35	0.24	95.00	0.78	-5.45	80.27	1.02	-26.15	1.71	0.43	0.09 *	24.82	-0.09**	-11.33
43.	NIC-54-164-B	37.11	0.35	0.94	96.44	0.80	-4.27	82.51	1.32*	-25.83	2.09	0.37	-0.03	29.31	0.87	-11.15
44.	SI-2039-A	37.11	1.11	1.80	95.78	1.06	13.88	86.27	0.99*	-26.32	2.03	1.63*	-0.03	33.16	1.27	-8.58
45.	SI-1782-A	37.89	0.36	-0.98	96.89	0.62	-0.94	82.44	1.06	39.23	2.16	2.67	0.07	24.71	0.60	15.61
46.	NIC-9852-A	37.44	1.38	0.37	95.11	1.10	5.39	92.29	1.45	98.09*	2.62	6.54	0.12 *	43.09	2.42	-5.92
47.	GRT-8622	38.78	1.47	-0.43	97.44	0.86	-4.54	86.56	1.05	-1.46	2.33	4.97	0.94**	40.49	2.12*	-10.50
48.	ES-46-A	38.22	0.17	-0.59	97	0.99	-3.74	82.29	0.95	-25.77	2.14	-0.25*	-0.03	30.87	1.07	-9.76
49.	TKG-15-2-2	37.56	1.16	-0.55	97.44	0.84	0.44	86.51	0.97	-24.90	1.96	4.24*	-0.03	34.18	1.80	-9.85
50.	JLS-709-1	37.67	0.67	-1.02	95.11	1.10	-5.23	93.91	1.31	-23.18	1.57	1.39	-0.02	26.89	0.54	7.34
51.	DS-46-3	37.89	1.24	2.71	99.56	1.21	1.21	80.73	0.91	-12.20	1.94	0.38	-0.03	33.58	1.12	-7.18
52.	SI-3299-A	38.22	1.10	-0.98	99.56	1.22	-2.82	85.33	0.60	-18.83	1.93	2.54	0.04	30.02	1.11	15.20
53.	SI-3278	38.67	1.22	-0.75	97.44	1.16	3.32	80.33	0.76	24.68	2.37	1.95	0.22**	32.27	0.49 *	-11.31
54.	IS-157-A	38.78	0.09	3.74 *	99	0.77	3.39	76.67	0.77	-16.43	1.93	1.67	0.06	31.76	1.00	-9.75
55.	IS-520	37.11	0.93	0.66	92	2.19	3.70	79.44	0.85	-10.47	2.11	4.69	0.09 *	33.11	2.47	3.09
56.	NIC-17868	38.44	1.22	-0.35	98.67	1.16	-5.62	92.67	0.87	-11.44	2.09	2.11	-0.02	30.09	1.27	-6.97
57.	Tileendre local	37.89	0.97	-0.96	97.67	0.91	-4.79	83.56	1.27	91.07*	1.89	-0.66	0.04	28.47	1.18	36.97 *
58.	AKT-64	37.44	0.73	-1.08	90.11	0.30	-2.91	81.24	0.99	-3.17	1.73	1.27	-0.01	32.36	0.96	10.85
59.	AKT-101	43.44	0.48	-0.69	96.44	0.12	8.63	86.69	0.73	-0.66	1.87	1.11	-0.02	29.71	0.88	-0.76
60.	PKV-NT-11	42.11	-0.14	0.69	102	0.25*	-5.59	98.53	1.13	-18.13	2.49	2.58	0.04	42.02	2.38	4.03
	Mean	37.56			97.04			86.35			2.02			32.11		

* Significant at 5 % level **; Significant at 1 % level

Capsule breadth (mm). The genotype IC- 203959 (26), ES-46-A (48), IS-520 (55) and AKT-101 (59) recognised as stable under average environmental condition. The genotypes PKV-NT-11 (60) and EC- 370450 (13) found to be stable for favourable environmental condition. Whereas, the genotypes IC- 203954 (24) and SI-2039-A (44) perform well under poor environmental condition. Kadiyara and Kulkarni (2017) found similar result.

Length of capsule (cm). The genotype EC- 370372 (6) and IC- 203955 (25) perform well under average environmental condition. The genotypes IC- 204058 (33) and PKV-NT-11 (60) found to be stable for favourable environmental condition. The genotypes EC- 370374 (8) and AKT-101 (59) perform well under poor environmental conditions. The result accordingly reported by Chaudhari *et al*. (2015); Raikwar (2016).

1000-seed weight (g). The genotype EC- 370430 (11) and PKV-NT-11 (60) perform well under average environmental condition. The genotypes EC- 370373 (7) and GRT-8622 (47) found to be stable for favourable environmental condition. The genotypes IC- 204063 (37) and GRT-839-A (38) perform well under poor environmental conditions. Similar result reported by Anuradha and Reddy (2005); Chaudhari *et al*. (2015).

Number of seed per capsule. The genotypes IC- 204054 (31), DS-46-3 (51) and SI-3299-A (52) recognised as stable. The genotypes EC- 370373 (7) and IC- 204063 (37) noted to be stable for favourable environmental condition. The genotypes EC- 370374 (8) and IC- 204062 (36) perform well under poor environmental conditions. Result accordingly reported by Parmar *et al*. (2014) and Chaudhari *et al*. (2015).

Oil content (%). The genotypes NIC-54-164-B (43) and PKV-NT-11 (60) found to be stable for average environmental condition. The AKT-101 (59), IC- 204045 (28) and IC- 204047 (29) perform well under poor environmental conditions. Similar result found by Abate *et al*. (2015); Shelar *et al*. (2021).

Seed yield per plant (g). The genotypes IC- 203884 (16), IC- 203892 (21), IC- 204059 (34), DS-46-3 (51) and IS-157-A (54) reported stable over the environments *i.e.*, average stability. But plant breeder should take interest the genotype with high mean value, therefore, genotype IC- 203884 (16), DS-46-3 (51) and IS-157-A (54) recognised as best genotypes for seed yield. The genotypes EC-370345 (2), SI-3299-A (52) and AKT-64 (58) found stable for favourable environmental condition. The genotypes IC- 203883 (15) and IC- 203959 (26) perform well under poor environmental condition. The accordance result proposed by Anuradha and Reddy (2005); Raikwar (2016).

Table 4: Genotypes reported stable in Sesame (*Sesamum indicum* L.).

Sr. No.	Characters studied	Average stability	Below average stability	Above average stability
1.	Days to 50% flowering	**IC- 203884 (16)** and **IC- 203959 (26)**	EC- 370430 (11) and NIC-8600-A (39)	EC- 370382 (9) and IC- 203920 (22)
2.	Days to maturity	EC- 370402 (9), EC- 370455 (14) and GRT-839-A (38)	EC- 370430(11), IC-203931 (23), IC-204062 (36) and IC- 204063 (37)	IC- 203888 (19) and IC-204060 (35)
3.	Plant height (cm)	IC- 203892 (21) and TKG-15-2-2 (49)	GRT-8622 (47)	IC- 203883 (15) and AKT-101 (59)
4.	Number of branches per plant	EC- 370442 (12), IC- 203954 (24) and IC- 204060 (35)	IC- 204062 (36)	NIC-54-164-B (43)
5.	Number of capsules per plant	**DS-46-3 (51)** and AKT-64 (58)	EC- 370382 (9) and SI-2039-A (44)	IC- 203883 (15) and IC- 203959 (26)
6.	Capsule breadth (mm)	**IC- 203959 (26)**, ES-46-A (48), IS-520 (55) and AKT-101 (59)	PKV-NT-11 (60) and EC- 370450 (13)	IC- 203954 (24) and SI-2039-A (44)
7.	Length of capsule (cm)	EC- 370372 (6) and IC- 203955 (25)	IC- 204058 (33) and PKV-NT-11 (60)	EC- 370374 (8) and AKT-101 (59)
8.	1000-seed weight (g)	EC- 370430 (11) and PKV-NT-11 (60)	EC- 370373 (7) and GRT-8622 (47)	IC- 204063 (37) and GRT-839-A (38)
9.	Number of seed per capsule	IC- 204054 (31), **DS-46-3 (51)** and SI-3299-A (52)	EC- 370373 (7) and IC- 204063 (37)	EC- 370374 (8) and IC- 204062 (36)
10.	Oil content (%)	NIC-54-164-B (43) and PKV-NT-11 (60)		AKT-101 (59), IC- 204045 (28) and IC-204047 (29)
11.	Seed yield per plant (g)	**IC- 203884 (16), DS-46-3 (51)** and IS-157-A (54)	EC-370345 (2), SI-3299-A (52) and AKT-64 (58)	IC- 203883 (15) and IC- 203959 (26)

CONCLUSIONS

As yield is prime character, the investigation determined that genotypes IC- 203884 (16), DS-46-3 (51) and IS-157-A (54) recognised as stable with high mean value for seed.

FUTURE SCOPE

The genotypes identified as stable can be release as new variety and use as parentage in future breeding programme for improvement seed yield and other various characters.

Acknowledgement. The authors are thankful to NBPGR, RS, Akola and AICRP on Sesame to provide the germplasm to conduct this experiment.

Conflict of Interest. None.

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How to cite this article: Uikey Kirtikumar N., Deshmukh D.T., Mohurle N.A., Vaidya E.R., Gomashe S.S., Durge D.V. and Walke R.D. (2023). Stability Study for Yield and its Contributive Traits in Sesame (*Sesamum indicum* L.). *Biological Forum – An International Journal, 15*(5): 56-61.