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Selection of Sesame Accessions (*Sesamum indicum* L.) in Thua Thien Hue Province, Vietnam

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Abstract: The main objective of this study was to select the best accessions for use as potential breeding sources in Thua Thien Hue province. A total of 16 accessions were used in this study, of which three accessions from Ho Chi Minh city in Vietnam, four accessions supplied by Japan, six accessions collected from China, two accessions provided by the United States and one Mè Vàng local accession (control) from Thua Thien Hue. The field experiment was conducted from August 2016 to November 2016 and laid out in a random complete block design (RCBD) for three replications at Huong Long ward, Hue city, Thua Thien Hue province. Each accession was observed 10 plants per replication. The size of each plot was 10 m^2 and the spacing of 25 cm × 10 cm was applied. The results showed that experiment accessions can grow under Thua Thien Hue conditions. Of those, the actual yield of VV12, VDM21, VH12, VDM50, VH01 and VDM45 were higher than the other accessions with 1.65, 1.64, 1.55, 1.54, 1.52 and 1.45 tons/ha, respectively. Oil content of these six accessions was above 50%. Therefore, VV12, VDM21, VH12, VDM50, VH01 and VDM45 can be used for breeding and cultivation under local condition.

Key words: Sesame accession, growth, yield, Thua Thien Hue province.

1. Introduction

Sesame (*Sesamum indicum* L.), belonging to Pedaliaceae family is a herbaceous annual plant, and also known as bennissed, benne, sesamum, gingelly, sim-sim and tila [1, 2]. Sesame was planted in 69 countries around the world with an area of nearly 9.40 million hectares, of which the main producing regions were Africa and Asia with 62.51% and 34.56% of the area, 59.81% and 36.61% of the world production, respectively [3]. *Sesamum indicum* L. is an important oil seed crop and used in food, nutraceutical and pharmaceutical industry because of its high oil (44%-58%), protein (18%-25%) and carbohydrates (13.5%) contents [4, 5]. Sesame oil is considered as one of the most valuable vegetable oils used to replace tallow, which helps provide nutrients and avoid cardiovascular, blood pressure for human. There are a lot of documents on the nutritional value of sesame seeds published. Pathak et al. [1] showed the perspective on bioactive components from ingredients of sesame seeds for enhancing utility and profitability. Yokota et al. [6] indicated that cyclin D1 protein expression in human tumor cells can be down-regulated due to sesamin, a major lignan constituent of sesame. An overview of the nutritional, medicinal and industrial uses of sesame (*Sesamum indicum* L.) seeds was published by Anilakumar et al. [7]. Besides, the value of using sesame in livestock is also studied. Aregawi et al. [8] reported the utilization and nutritive value of sesame (*Sesamum indicum* L.) straw as feed for livestock in the Northwestern lowlands of Ethiopia. This crop is also able to withstand a variety of external and growing conditions [9]. It is grown under wide range of cultivation form, such as the different crop rotations or intercrop farming.

Vietnam has suitable climate and soil conditions for

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growing sesame and it is one of the old traditional crops. Sesame seeds are formerly used as an intermediary food to produce domestic consumption products. Today, the demand for vegetable oil has increased, and sesame becomes a potential crop to develop due to high oil content. In addition, the value usage from *Sesamum indicum* L. in medical field is also a great output for sesame plant. However, sesame has not been considered as a main crop and extensive farming is also major cultivation form. According to FAO statistics [3], yield of sesame in Vietnam ranked the second with 0.81 tons/ha, after Laos with 1.27 tons/ha in five sesame seeds producing countries in Southeast Asia. In recent years, the selection, testing of new varieties and restructuring crops, which is one of the agricultural development strategies in Thua Thien Hue province, are being promoted to improve productivity and quality. Therefore, the purpose of this study was to select sesame accessions (*Sesamum indicum* L.) for breeding and cultivation under local conditions.

2. Materials and Methods

2.1 Materials

There were total 16 sesame accessions used in this study, including one Mè vàng accession (control) from Thua Thien Hue (TTH) province of Vietnam; three accessions from Ho Chi Minh city (HCMC) in Vietnam, namely, VDM3, VV12 and VD3; four accessions, such as VDM21, VDM36, VDM39 and VDM50 supplied by Japan; six accessions collected from China, VDM37, VDM38, VDM163, VH01, VH06 and VH12; two accessions, VDM40 and VDM45 provided by the United States (Table 1).

2.2 Experimental Design

The field experiment was conducted from August 2016 to November 2016 in an open field at Huong Long ward, Hue city, Thua Thien Hue province. Planting and nursing techniques were based on the recommendations of the Research Institute for Oil and Oil Plants. The experiment was laid out in a random complete block design (RCBD) for three replications. The size of each plot was 10 m^2 and the spacing of 25 cm × 10 cm was applied in this study. Each accession was observed 10 plants per replication.

2.3 Agronomy Characteristic Collection

The parameters were measured depending on guidelines of Research Institute for Oil and Oil Plants, including time of growth of each accession, growth ability (plant height, growth of stem and branch), morphological traits of stem, leaf, flower, capsule and seed, yield and yield components (number of capsules/bud, number of capsules/plant, number of seeds/capsule, weight of 1,000 seeds, yield and actual yield) and seeds quality.

2.4 Statistics Analysis

Data was calculated by Excel 2013 and analyzed by Statistix 10.0.

Table 1 List of sesame accessions used.

No.	Name of accession	Place of origin	No.	Name of accession	Place of origin
1	Mè vàng (Control)	TTH, Vietnam	9	VDM37	China
2	VDM3	HCMC, Vietnam	10	VDM38	China
3	VV12	HCMC, Vietnam	11	VDM163	China
4	VD3	HCMC, Vietnam	12	VH01	China
5	VDM21	Japan	13	VH06	China
6	VDM36	Japan	14	VH12	China
7	VDM39	Japan	15	VDM40	the United States
8	VDM50	Japan	16	VDM45	the United States

3. Results and Discussion

3.1 Time of Growth

Table 2 shows time of growth and development of sesame accessions. Time of growth of sesame ranges around 82 d. This parameter is an important factor to determine crop season and apply appropriate techniques. Time from sowing to flowering among accessions ranged from 31 d to 38 d. VH06 had the earliest flowering time with 31 d, followed by 32 d of VDM3, VDM36, VDM37, VDM38, VH01 and VV12, and 33 d of the control check, VD3, VDM21, VDM39, VDM50 and VDM40. VDM163 and VDM45 had the same time with 35 d. The latest flowering time was VH12 with 38 d. Time from sowing to ending flowering and yield of sesame are closely related to each other. The accession that has early ending flowering time can get high yield. Time from sowing to ending flowering ranged from 40 d (VDM40) to 49 d (VV12 and VH12). VH06 accession also had the earliest harvesting time at 68 d and the latest one was VDM40 with 82 d.

3.2 Growth Ability

3.2.1 Plant Height

Plant height is controlled by genetics, but also influenced by environmental factors, such as temperature, sunlight, soil nutrition and other cultivation techniques. Plant height is one of the morphological indicators to assess the growth, development and yield. The plant height of these sesame accessions is presented in Table 3. At 23 days after sowing (DAS), plant height among accessions had significant difference. VDM163 had the highest plant height with 23.98 cm and the shortest one was recorded in VD3 with 14.84 cm. The other accessions ranged from 17.41 cm to 23.88 cm.

At 30 DAS, plant height increased rapidly in VH01 with 63.51 cm, whereas, VH06 had the lowest with 31.79 cm. The difference between VH01, VV12 and the remained accessions had statistical significance at 95% confidence level. From 37 DAS to 51 DAS, the plant height of control check, VDM3, VD3 and VH06 were not increased, with 53.48, 40.67, 46.43, and

Table 2 Growth period time of sesame accessions

No.	Accession	Time (d) from sowing to		
		Flowering	Ending flowering	Harvesting
1	Control	33	43	71
2	VDM3	32	46	78
3	VV12	32	49	79
4	VD3	33	43	76
5	VDM21	33	43	79
6	VDM36	32	46	79
7	VDM39	33	45	78
8	VDM50	33	46	79
9	VDM37	32	43	78
10	VDM38	32	43	78
11	VDM163	35	43	75
12	VH01	32	48	78
13	VH06	31	43	68
14	VH12	38	49	78
15	VDM40	33	40	82
16	VDM45	35	41	78

Table 3 Plant height of sesame accessions.

No.	Accession	Plant height (cm) at DAS					Harvesting
		23	30	37	44	51	
1	Control	21.67[abc]	46.42[e]	53.48[g]	53.48[h]	53.48[h]	74.45[f]
2	VDM3	17.41[e]	32.68[g]	40.67[i]	40.67[j]	40.67[j]	64.96[g]
3	VV12	21.96[abc]	59.74[a]	74.93[a]	81.92[a]	88.79[a]	106.87[a]
4	VD3	14.84[f]	38.25[f]	46.43[h]	46.43[i]	46.43[i]	65.86[g]
5	VDM21	18.98[de]	47.49[de]	61.79[de]	70.62[d]	75.70[de]	95.43[d]
6	VDM36	20.81[cd]	52.29[b]	61.69[de]	69.66[d]	75.31[de]	96.59[d]
7	VDM39	21.73[abc]	51.31[bcd]	62.66[de]	67.46[def]	72.19[fg]	94.89[d]
8	VDM50	21.83[bc]	53.16[b]	62.85[de]	69.16[de]	72.21[ef]	96.21[d]
9	VDM37	20.00[cd]	48.22[cde]	56.08[fg]	61.82[g]	66.14[g]	88.82[e]
10	VDM38	22.10[abc]	52.67[b]	58.99[ef]	65.05[efg]	68.72[fg]	88.75[e]
11	VDM163	23.98[a]	48.19[cde]	67.91[bc]	70.50[b]	81.12[bc]	98.72[cd]
12	VH01	23.88[a]	63.51[a]	69.53[b]	75.23[bc]	78.97[cd]	100.70[bc]
13	VH06	20.36[cd]	31.79[g]	37.14[i]	37.14[j]	37.14[j]	57.60[h]
14	VH12	20.60[cd]	55.21[b]	74.53[a]	80.64[a]	85.37[ab]	103.61[ab]
15	VDM40	22.33[ab]	51.57[bc]	63.92[cd]	70.70[cd]	76.14[de]	96.10[d]
16	VDM45	20.88[cd]	45.20[e]	55.33[fg]	63.22[fg]	69.09[fg]	88.39[e]
CV (%)		6.72	4.90	4.26	4.27	4.01	2.72
$LSD_{0.05}$		2.34	3.96	4.21	4.58	4.55	4.02

[a-j] Means with different letters in each column indicate significant difference at $\alpha = 0.05$.

37.14 cm, respectively, whereas the others increased slowly. At 51 DAS, VH06 also had the lowest plant height with 37.14 cm, and the highest one was collected in VV12 with 88.79 cm.

At harvesting time, this parameter ranged from 57.60 cm (VH06) to 106.87 cm (VV12). The difference between the control check and the other accessions was statistically significant difference at 95% confidence level.

3.2.2 Growth of Stem and Branch

The results of growth of stem and branch are recorded and presented in Table 4. While number of the 1st branches of the control, VD3, VDM39, VDM37, VDM163, VH01, VH12, VDM40 and VDM45 were 2 branches/plant, the remained accessions just had main stem. Number of nodes per stem depends on characteristics of variety and external conditions. It ranged from 13.20 nodes/plant (VDM38) to 18.63 nodes/plant (VV12). The differences among the control check (14.57 nodes/plant), VV12 (18.63 nodes/plant), VD3 (17.57 nodes/plant) and VDM21 (17.90 nodes/plant) were statistically significantly different at 95% confidence level.

The highest of average internode length within capsule zone was obtained in VH12 (4.96 cm), followed by VDM38 (4.16 cm) and VDM36 (4.11 cm). The lowest average internode length was VD3 (2.01 cm). Stem height to the first capsule had significant difference among accessions and ranged from 22.02 cm (VH06) to 50.48 cm (VH01). VV12 and VDM21 had the longest stem length for capsule with 65.71 cm and 64.39 cm, respectively, while VD3 had the shortest one with 32.26 cm.

3.3 Morphological Traits

3.3.1 Stem, Leaf and Flower

Each accession has different morphological characteristics, which are signals to identify and distinguish among accessions. Stem, leaf and flower morphological traits of sesame accessions are presented in Table 5. Stem color of the control check, VDM3, VD3 had yellow green, VV12, VDM37 and VDM163 had violet, whereas VDM21, VDM36, VDM50, VDM38, VH01, VH06, VH12 and VDM40

Table 4 Growth of stem and branch of sesame accessions.

No.	Accession	No. of the 1st branches (branches/plant)	No. of nodes per stem (nodes/stem)	Average internode length within capsule zone (cm)	Stem height to the 1st capsule (cm)	Stem length for capsule (cm)
1	Control	2	14.57^{efg}	2.19^{h}	41.91^{bcde}	32.54^{i}
2	VDM3	0	14.53^{efg}	2.26^{gh}	30.39^{h}	34.57^{i}
3	VV12	0	18.63^{a}	4.03^{ab}	41.16^{cde}	65.71^{a}
4	VD3	2	17.57^{abc}	2.01^{h}	33.60^{fgh}	32.26^{i}
5	VDM21	0	17.90^{ab}	3.56^{bcd}	31.05^{h}	64.39^{ab}
6	VDM36	0	15.23^{def}	4.11^{a}	33.2^{fgh}	64.03^{ab}
7	VDM39	2	15.73^{de}	3.53^{bcde}	37.00^{efg}	58.23^{bc}
8	VDM50	0	15.90^{cde}	3.50^{cde}	38.17^{ef}	57.56^{c}
9	VDM37	2	13.70^{fg}	3.13^{def}	44.95^{abcd}	43.87^{fg}
10	VDM38	0	13.20^{g}	4.16^{a}	31.79^{gh}	56.96^{cd}
11	VDM163	2	18.00^{ab}	2.71^{fg}	47.68^{ab}	51.04^{de}
12	VH01	2	14.60^{defg}	3.31^{de}	50.48^{a}	50.22^{ef}
13	VH06	0	14.60^{defg}	2.40^{gh}	22.02^{i}	35.58^{hi}
14	VH12	2	15.53^{de}	4.96^{abc}	40.46^{de}	63.16^{abc}
15	VDM40	2	15.47^{de}	3.03^{ef}	48.50^{a}	47.60^{efg}
16	VDM45	2	16.33^{bcd}	2.47^{gh}	46.91^{abc}	41.47^{gh}
CV (%)			6.74	9.53	8.96	7.75
$LSD_{0.05}$			1.76	0.50	5.76	6.45

[a-i] Means with different letters in each column indicate significant difference at $\alpha = 0.05$.

Table 5 Stem, leaf and flower morphological traits of sesame accessions.

No.	Accession	Stem		Leaf		Color of petal
		Color	Shape	Color	Shape	
1	Control	Yellow green	Round	Yellowish green	Subulate	Light violet
2	VDM3	Yellow green	Square	Yellowish green	Subulate	Pink white
3	VV12	Violet	Square	Yellowish green	Subulate	Pink violet
4	VD3	Yellow green	Square	Yellowish green	Subulate	Violet
5	VDM21	Green	Square	Dark green	Linear	Pink white
6	VDM36	Green	Square	Green	Subulate	Pink white
7	VDM39	Violet green	Square	Dark green	Linear	Violet
8	VDM50	Green	Square	Dark green	Linear	Light violet
9	VDM37	Violet	Square	Yellowish green	Linear	Light violet
10	VDM38	Green	Square	Green	Subulate	Pink white
11	VDM163	Violet	Square	Yellowish green	Subulate	White
12	VH01	Green	Square	Green	Subulate	Pink white
13	VH06	Green	Square	Dark green	Subulate	Violet
14	VH12	Green	Square	Dark green	Subulate	Violet
15	VDM40	Green	Square	Green	Linear	Pink white
16	VDM45	Green violet	Square	Green	Linear	Light violet

were green. VDM39 was violet green and VDM45 had green violet. The control check had round stem shape, and the other accessions were square. Leaf color ranged from yellowish green to dark green. The control, VDM3, VV12, VD3, VDM37 and VDM163 had yellowish green; VDM36, VDM38, VH01, VDM40 and VDM45 had green, whereas dark green was observed in VDM21, VDM39, VDM50, VH06 and VH12. Shape of leaf was also different. The control check, VDM3, VV12, VD3, VDM36, VDM38, VDM163, VH01, VH06 and VH12 had subulate leaf shape and the remained accessions were linear one. Color of petal is one of the morphological traits specializing for each accession. The control check, VDM50, VDM37 and VDM45 were light violet petal color. VDM3, VDM21, VDM36, VDM38, VH01 and VDM40 had pink white. Pink violet color was obtained in VV12. VDM163 had white and the others had violet color.

3.3.2 Capsule and Seed

Capsule and seed morphological traits of sesame accessions are shown in Table 6. While VDM3, VD3, VDM21, VDM36, VDM39, VDM50, VDM37, VDM38, VH06 and VDM40 had the lowest segment number (2.00 segments/capsule), the control had the highest with 5.33 segments/capsule. Size of capsule was assessed on length and width. VDM3 had the longest length with 3.47 cm and the lowest was the control check (1.81 cm). There was statistically significant difference between VDM3 and the other accessions at 95% confidence level. Width of capsule ranged from 0.35 cm (VDM3) to 1.32 cm (control check). Color of seed skin is also a signal to distinguish among accessions. Seed skin color of the control, VV12, VDM163 and VH06 was yellow, whereas, VDM3, VDM21, VDM39, VDM50 and VDM38 had white color and the remained accessions were black one.

3.4 Yield and Yield Components

Yield and yield components had significant difference among accessions as shown in Table 7. Number of capsules/bud ranged from 1.00 capsule (VV12, VDM37, VDM163, VH01, VH12, VDM40 and VDM45) to 3.00 capsules (VDM39, VDM50 and VH06). The highest number of capsules/plant was obtained in VD3 (33.60 capsules/plant) and the lowest was VDM38 (12.67 capsules/plant). There was no significant difference on the number of capsules/plant among VDM163, VH01 and VDM40. However, the difference between VDM163, VH01, VDM40 and the other accessions was statistically significant at 95% confidence level. Number of seeds/capsule is controlled by genetics, but it was also influenced by environmental factors. VV12 had the highest seed number with 119.00 seeds/capsule,

Table 6 Capsule and seed morphological traits of sesame accessions.

No.	Accession	Number of segments/capsule	Size of capsule		Color of seed skin
			Length (cm)	Width (cm)	
1	Control	5.33^{a}	1.81^{k}	1.32^{a}	Yellow
2	VDM3	2.00^{f}	3.47^{a}	0.35^{h}	White
3	VV12	4.00^{b}	2.33^{hi}	0.85^{b}	Yellow
4	VD3	2.00^{f}	3.25^{b}	0.56^{ef}	Black
5	VDM21	2.00^{f}	2.81^{d}	0.46^{g}	White
6	VDM36	2.00^{f}	2.81^{d}	0.41^{g}	Black
7	VDM39	2.00^{f}	2.97^{c}	0.52^{f}	White
8	VDM50	2.00^{f}	2.92^{cd}	0.56^{ef}	White
9	VDM37	2.00^{f}	2.98^{c}	0.41^{g}	Black
10	VDM38	2.00^{f}	2.70^{de}	0.61^{e}	White
11	VDM163	3.67^{bc}	2.47^{gh}	0.75^{cd}	Yellow
12	VH01	3.00^{de}	2.50^{fg}	0.72^{d}	Black
13	VH06	2.00^{f}	2.60^{efg}	0.57^{ef}	Yellow
14	VH12	2.67^{e}	2.63^{ef}	0.45^{g}	Black
15	VDM40	2.00^{f}	2.24^{ij}	0.45^{g}	Black
16	VDM45	3.33^{cd}	2.11^{j}	0.78^{c}	Black
CV (%)		11.36	2.95	5.49	
$LSD_{0.05}$		0.49	0.13	0.06	

$^{a\text{-}k}$ Means with different letters in each column indicate significant difference at $\alpha = 0.05$.

followed by the control check and VDM45 with 115.40 seeds/capsule and 94.60 seeds/capsule, respectively. VDM36 had the lowest with 62.53 seeds/capsule. Numbers of seeds/capsule of almost accessions in this study were lower than the results reported by Pham et al. [10] who reported the parameter of 17 sesame accessions from different origins ranged from 50.00 seeds/capsule to 138.00 seeds/capsule. Weight of 1,000 seeds ranged from 2.49 g (the control check) to 3.85 g (VDM21). The data indicated significant difference between VV12, VDM36 and the remained accessions. The parameter of weight of 1,000 seeds in this study was higher than the other study of Sarkar et al. [11], where the effect of sowing date on seed yield and its components of sesame seed was studied and yield ranged from 2.02 g to 2.05 g.

Yield and yield components are one of the indicators to evaluate the adaptability of each accession under external conditions. VDM38 had the lowest actual yield with 0.71 tons/ha and the highest was obtained in VV12 with 1.65 tons/ha. Actual yield of VDM21 (1.64 tons/ha), VH12 (1.55 tons/ha), VDM50 (1.54 tons/ha), VH01 (1.52 tons/ha) and VDM45 (1.45 tons/ha) were higher than the control check (1.44 tons/ha).

3.5 Seed Quality

Sesame oil contains sesamin and sesaminol lignans in its non-glycerol fraction, which are known to play an important role in the oxidative stability and antioxidative activity [5]. Table 8 shows the oil content of sesame accessions. VDM 38 had the highest oil content with 55.56%, followed by VDM3 and VH06 with 55.13% and 55.11%, respectively. The lowest was the control check with 49.30%. The seed soil content of sesame in this study was lower than a study conducted by Noorka et al. [12] who researched response of sesame to population densities and nitrogen fertilization on newly reclaimed sandy soils for two years and reported the data ranged from 50.70% to 56.82% for year 1 and from 51.08% to 57.97% for year 2 of different distance between hills; ranged from 52.20% to 58.19% for year 1 and from 52.86% to 58.98% for year

Table 7 Yield and yield components of sesame accessions.

No.	Accession	No. of capsules/bud	No. of capsules/plant	No. of seeds/capsule	Weight of 1,000 seeds (g)	Actual yield (tons/ha)
1	Control	2.00^{bc}	15.20^{fg}	115.40^{a}	2.49^{i}	1.44^{ab}
2	VDM3	2.33^{ab}	22.13^{cdef}	77.80^{cd}	3.06^{ef}	1.32^{abc}
3	VV12	1.33^{de}	22.93^{cdef}	119.00^{a}	2.64^{hi}	1.65^{a}
4	VD3	1.67^{cd}	33.60^{a}	77.27^{cd}	2.80^{gh}	1.27^{bc}
5	VDM 21	2.00^{bc}	28.07^{abc}	69.40^{ef}	3.85^{a}	1.64^{a}
6	VDM36	1.67^{cd}	26.13^{abcd}	62.53^{f}	2.66^{hi}	1.26^{bc}
7	VDM39	2.47^{ab}	24.87^{bcde}	68.93^{ef}	3.62^{abc}	1.44^{ab}
8	VDM50	2.67^{a}	24.87^{bcde}	64.67^{f}	3.82^{a}	1.54^{ab}
9	VDM37	1.00^{e}	19.80^{defg}	63.80^{f}	3.55^{bc}	1.27^{bc}
10	VDM38	2.00^{bc}	12.67^{g}	63.47^{f}	3.40^{cd}	0.71^{d}
11	VDM163	1.00^{e}	20.00^{defg}	80.27^{c}	2.73^{h}	0.76^{d}
12	VH01	1.00^{e}	19.80^{defg}	82.80^{c}	3.15^{ef}	1.52^{ab}
13	VH06	2.67^{a}	17.87^{efg}	72.73^{de}	3.01^{fg}	0.80^{d}
14	VH12	1.33^{de}	32.07^{ab}	64.67^{f}	3.24^{de}	1.55^{ab}
15	VDM40	1.00^{e}	19.13^{defg}	65.13^{f}	3.78^{ab}	1.02^{cd}
16	VDM45	1.00^{e}	22.00^{cdef}	94.60^{b}	2.99^{fg}	1.45^{ab}
CV (%)		22.04	20.99	5.68	4.39	17.07
$LSD_{0.05}$		0.62	7.90	7.35	0.23	3.67

[a-i] Means with different letters in each column indicate significant difference at $\alpha = 0.05$.

Table 8 Oil content of sesame accessions.

No.	Accession	Oil content (%)	No.	Accession	Oil content (%)
1	Control	49.30	9	VDM37	54.95
2	VDM3	55.13	10	VDM38	55.56
3	VV12	50.10	11	VDM163	51.91
4	VD3	51.60	12	VH01	52.50
5	VDM 21	51.48	13	VH06	55.11
6	VDM36	51.42	14	VH12	52.30
7	VDM39	53.59	15	VDM40	55.07
8	VDM50	53.09	16	VDM45	53.38

2 of different nitrogen fertilization level.

4. Conclusions

The experiment accessions were diverse in agronomical and morphological features, such as time of growth, plant height, stem, branch, leaf, flower, capsule and seed. Six sesame accessions (VV12, VDM21, VH12, VDM50, VH01 and VDM45) had high actual yield and the oil content also got above 50%. These accessions could become candidates for potential breeding sources in local region. The 16 sesame accessions in this study need to be researched and selected in next seasons to adapt under local conditions.

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