Data Article

Data on growth and production of *(Aloe vera L.)* treated by different levels of vermicompost and nitrogen fertilizer

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**ABSTRACT**

Data on the effect of vermicompost and nitrogen on growth and production of *Aloe vera*, an experiment was carried out in 2015–2016 at Faculty of Agriculture of Islamic Azad University of Khoy. This experiment was arranged as factorial, based on RCB design with four replications. Treatments were 4 levels of vermicompost (Control, 75, 150 and 200 gr per pot) and four levels of nitrogen fertilizer (N1: control, N2: 500, N3: 1000, and N4: 1500 mg per pot). Nitrogen fertilizer was split into three stages (8 leaves, before suckering and the beginning of formation suckers). Traits investigated such as plant height, number of leaves, stem diameter, number of suckers, number of leaf sucker, sucker weight, sucker height and total biomass. This article present data regarding the application of 150 g of vermicompost and 1000 mg of nitrogen and 200 g of vermicompost and 1500 mg of nitrogen on the characteristics of sucker. Therefore, data on simultaneous application of vermicompost and nitrogen fertilizer in *Aloe vera* cultivation as an important role in the production and enhancement of sucker and plant yield mentioned.

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**Specifications table**

| Subject area                        | Chemistry, biology |
|-------------------------------------|--------------------|
| More specific subject area          | Effect of Vermicompost and Nitrogen on Growth and Production of Aloe vera |
| Type of data                        | Table and figure   |
| How data was acquired               | Laboratory equipments such as Ruler, caliper, Digital Balance |
| Data format                         | Analyzed data      |
| Experimental factors                | Effect of Vermicompost and Nitrogen on Growth and Production of Aloe vera |
| Experimental features               | Treatments were 4 levels of vermicompost (Control, 75, 150 and 200 gr per pot) and four levels of nitrogen fertilizer (N1: control, N2: 500, N3: 1000, and N4: 1500 mg per pot). Nitrogen fertilizer was split into three stages (8 leaves, before suckering and the beginning of formation suckers). In June, uniform suckers with a size of 18 to 20 cm were randomly selected and transferred to the greenhouse, and in pots with capacity of 20 kg of soil was planted. Before planting vermicompost treatments were added to pots and completely mixed with the soil. The greenhouse temperature for the growth of the Aloe vera was 28 °C/ day and 22 °C at night uniformly. Plants were irrigated on the crop capacity. At the end of the plant growth period, traits such as plant height, number of leaves, stem diameter, number of suckers, number of leaf sucker, sucker weight, sucker height and total biomass were measured. |
| Data source location                | Islamic Azad University of Khoy, Iran |
| Data accessibility                  | All data are present in this article |
| Related research article            | - Analysis of Different Levels of Superabsorbent and Vermicompost Effects on Performance and Aloe Vera Operation Component In Yasouj Region, Research Journal Of Fisheries And Hydrobiology, 10 (9) May 2015, Pages: 573–580 |
|                                     | - Effect Of Vermicompost and Compost on Lettuce Production, Chilean Journal of Agricultural Research. 2010 - Vol. 70 - N 4. |
|                                     | - Lettuce (Lactuca sativa ’Webb’s Wonderful’) shoot and root growth in different grades of compost and vermicomposted compost. Acta Horticulture. 2016, 1146, 33–40. |
|                                     | - Comparative efficacy of vermicomposted paper waste and inorganic fertilizer on seed germination, plant growth and fruition of Cyamopsis tetragonoloba. Journal of Applied Horticulture. 2014, 16, 40–45. |
|                                     | - Effect of macrophyte vermicompost on growth and productivity of brinjal (Solanum melongena) under field conditions. Int. J. Recycl. Org. Waste Agric. 2015, 4, 73–83. |
|                                     | - Effect of Vermicompost and Chemical Fertilizer on Growth and Yield of Hyacinth Bean, Lablab purpureus (L) Sweet. Dynamic Soil, Dynamic Plant, 2008, 2 (2), 77–81 |

**Value of the data**

- The data show the significant effect of Vermicompost on plant height, number of leaves, stem diameter, number of sucker, stem weight, number of leaf sucker, height of sucker and total biomass of Aloe vera
- The data indicate Vermicompost and Nitrogen treatments caused beneficial in improving Growth and yield of Aloe vera suckers
The data highlight positive effect of vermicompost and nitrogen on growth and production of suckers in Aloe vera. These data may be relevant for (i) other researchers using Vermicompost and Nitrogen in their experiments and (ii) for further research that focuses on the increasing of yield of Aloe vera.

1. Data

Below, reported the effects of Vermicompost and Nitrogen on Growth and Production of Aloe vera. The result of Physic-Chemical analysis of the soil are present at Table 1. Physical and chemical properties of vermicompost used in the experiment are shown in Table 2. Analysis of variance of vermicompost and nitrogen on studied traits in Aloe vera are present in Table 3. Comparison of mean vermicompost and nitrogen treatments on the traits of Aloe vera are shown in Table 4. Comparison of the mean of interaction between vermicompost and nitrogen on studied traits in Aloe vera are present in Table 5. Simple correlation coefficients of the traits studied in the Aloe vera are shown in Table 6. Interaction between vermicompost and nitrogen fertilizer on plant height in Aloe vera are depicted in Fig. 1. The Effect of Vermicompost Fertilizer and Nitrogen on Total Biomass in Aloe vera are depicted in Fig. 3

### Table 1
The result of Physic-Chemical analysis of the soil.

| Texture | Lime | Percent Saturated | Organic carbon (%) | Total N (%) | Available K ppm | Available P | EC (ds m-1) | pH |
|---------|------|------------------|-------------------|-------------|----------------|-------------|-------------|----|
| Clay    | 30.74| 60.98            | 2.57              | 0.25        | 314            | 8.43        | 1.57        | 8.66|

### Table 2
Physical and chemical properties of vermicompost used in the experiment.

| WSC | CEC | W | Na | Fe | Mn | Zn | Cu | Mg | Ca | K | P | Ash | N.A | OC% | EC(ds m-1) | pH |
|-----|-----|---|----|----|----|----|----|----|----|----|----|-----|-----|-----|-------------|----|
| –   | –   | – | 0.02| 0.38| 0.89| 2.5| 0.26| 0.38| 1.95| 0.79| 0.21| 0.98| 25  | 0.01| 8            | 1.97| 6.6 |

### Table 3
Analysis of variance of vermicompost and nitrogen on studied traits in Aloe vera.

| Source of variations | df | Means of squares |
|----------------------|----|------------------|
|                      |    | Total biomass (kg) | sucker height (cm) | number of leaf sucker | sucker weight (g) | number of Sucker | stem diameter (cm) | number of leaves |
| Replication ns 46.12 | 3  | ns 0.030          | ns 4.40             | ns 0.40                | ns 41.476          | 1.27             | ns 14.61            | 1.2              |
| Vermicompost 155.45** | 3  | 8.45**            | 1048.85**           | 57.38**                | 2489.43**          | 108.81**         | 73.34**            | 32.70**           |
| Nitrogen 618.7**     | 3  | 20.49**           | 538.45**            | 45.76**                | 2063.41**          | 5.74**           | 28.61**            | 7.17**            |
| V × N 78.47**        | 9  | 0.48**            | 136.08**            | 13.86**                | 525.90**           | 11.97**          | ns 18.7             | 1.16*             |
| Error 18.34          | 32 | 0.0478            | 4.8                 | 0.28                   | 43.76              | 0.82             | 9.26               | 0.46              |
| CV (%) 6.93          | –  | 5.76              | 15.74               | 12.40                  | 25.28              | 23.02            | 6.68               | 3.1               |

ns, * and **: Non-significant and significant at the 5 and 1% levels of probability, respectively.
Table 4
Comparison of mean vermicompost and nitrogen treatments on the traits of Aloe vera.

| Treatment     | Traits studied | Level of treatment | Total biomass (kg) | sucker height (cm) | number of leaf sucker | sucker weight (g) | number of Sucker | stem diameter (cm) | number of leaves | plant height (cm) |
|---------------|----------------|--------------------|--------------------|-------------------|----------------------|------------------|-----------------|-------------------|-----------------|------------------|
| Nitrogen      |                | 0                  | 2.29 d             | 7.07 c            | 2.39 c               | 10.48 c          | 3.30 b          | 41.93 b           | 20.58 c         | 52.76 c          |
|               |                | 500                | 3.70 c             | 14.30 b           | 4.26 b               | 27.50 b          | 3.56 b          | 45.24 ab          | 21.30 b         | 59.57 b          |
|               |                | 1000               | 4.11 b             | 13.32 b           | 4.28 b               | 29.01 b          | 4.45 a          | 46.92 a           | 21.81 a         | 66.50 a          |
|               |                | 1500               | 5.09 a             | 21.20 a           | 6.53 a               | 36.62 a          | 4.45 a          | 46.46 a           | 22.13 a         | 65.60 a          |
| Vermicompost  |                | 0                  | 3.06 d             | 3.95 d            | 1.68 c               | 9.4 d            | 0.29 d          | 43.82 b           | 20.17 b         | 61.75 a          |
|               |                | 75                 | 3.34 c             | 11.92 c           | 4.39 b               | 24.79 c          | 4.08 c          | 43.73 b           | 20.28 b         | 57.30 b          |
|               |                | 150                | 4.09 b             | 17.30 b           | 5.58 a               | 32 b             | 5.11 b          | 48.16 a           | 22.80 a         | 64.51 a          |
|               |                | 200                | 4.62 a             | 22 a              | 6.80 a               | 38.42 a          | 6.32 a          | 46.34 a           | 20.59 a         | 63.06 a          |

In each column, the same letters indicate that there is no significant difference between the means (LSD test).

Table 5
Comparison of the mean of interaction between vermicompost and nitrogen on studied traits in Aloe vera.

| Treatment         | Sucker height (cm) | Number of leaf sucker | Sucker weight (g) | Leaf diameter (cm) | Number of leaves |
|-------------------|--------------------|-----------------------|------------------|-------------------|-----------------|
| N0V0 (control)    | 0 h                | 0 g                   | 0 g              | 40.16 e           | 17.84 h         |
| N0V1              | 0 h                | 0 g                   | 0 g              | 42.40 cd          | 20 g            |
| N0 V2             | 12.72 fg           | 4.22 f                | 15.1 f           | 49.11 a           | 22.23 bc        |
| N0 V3             | 15.51 ef           | 5.29 ce               | 26.71 e          | 43.18 bd          | 22 dc           |
| N1V0              | 0 h                | 0 g                   | 0 g              | 42.90 cd          | 20.23 fg        |
| N1V1              | 9.94 g             | 4.4 ef                | 42.5 ab          | 44.13 bd          | 20.23 fg        |
| N1 V2             | 14.4 f             | 6.05 ac               | 33.6 ce          | 48.16 ab          | 22.23 bc        |
| N1 V3             | 33.22 a            | 6.26 ab               | 35.03 be         | 45.68 ac          | 22.41 bc        |
| N2V0              | 0 h                | 0 g                   | 0 g              | 47.93 ab          | 21.23 de        |
| N2V1              | 15.43 f            | 6 ac                  | 29.96 de         | 45.26 ac          | 20.64 fg        |
| N2 V2             | 19.1 cd            | 5.73 bd               | 43.50 ab         | 45.70 ac          | 23.60 a         |
| N2 V3             | 18.4 de            | 5.25 de               | 42.55 ab         | 47.51 ab          | 23 ab           |
| N3V0              | 15.85 ef           | 6.70 a                | 37.4 be          | 44.20 bd          | 21 ef           |
| N3V1              | 22.30 bc           | 6.76 a                | 27.02 e          | 43.05 cd          | 20.23 fg        |
| N3 V2             | 22.68 b            | 6.26 ab               | 36.2 bd          | 49.4 a            | 23 ab           |
| N3V3              | 23.93 b            | 6.30 ab               | 49.26 a          | 48.93 a           | 23 ab           |

In each column, the same letters indicate that there is no significant difference between the means (LSD test).

Table 6
Simple correlation coefficients of the traits studied in the Aloe vera.

| Plant height       | Number of leaves | Stem diameter | Number of sucker | Sucker weight | Number of leaf sucker | Sucker height | Total biomass |
|--------------------|------------------|---------------|------------------|---------------|-----------------------|---------------|---------------|
| Plant height       | 1                |               |                  |               |                       |               |               |
| Number of leaves   | 0.677**          | 1             |                  |               |                       |               |               |
| Stem diameter      | 0.677**          | 0.722**       | 1                |               |                       |               |               |
| Number of sucker   | ns 0.182         | 0.621**       | ns 0.480         | 1             |                       |               |               |
| Sucker weight      | ns 0.377         | 0.652**       | ns 0.431         | 0.711**       | 1                     |               |               |
| Number of leaf sucker | ns 0.257       | 0.587*        | ns 0.408         | 0.777**       | 0.884**               | 1             |               |
| Sucker height      | ns 0.312         | 0.658*        | ns 0.424         | 0.757*        | 0.806**               | 0.888**       | 1             |
| Total biomass      | 0.624**          | 0.718**       | 0.571*           | 0.572**       | 0.810**               | 0.800**       | 0.841**       |

ns, * and **: Non-significant and significant at the 5 and 1% levels of probability, respectively.
2. Experimental design, materials, and methods

An experiment was conducted to evaluate the effect of vermicompost and nitrogen on growth and production of *Aloe vera*. Treatments were 4 levels of vermicompost (Control, 75, 150 and 200 gr per pot) and four levels of nitrogen fertilizer (N1: control, N2: 500, N3: 1000, and N4: 1500 mg per pot) [1,2]. Nitrogen fertilizer was split into three stages (8 leaves, before suckering and the beginning...
of formation suckers). In June, uniform suckers with a size of 18 to 20 cm were randomly selected and transferred to the greenhouse, and in pots with capacity of 20 kg of soil was planted. Before planting vermicompost treatments were added to pots and completely mixed with the soil [3]. The greenhouse temperature for the growth of the *Aloe vera* was 28 °C/day and 22 °C at night uniformly. Plants were irrigated on the crop capacity. The greenhouse experiment was conducted at the Faculty of Agriculture of Islamic Azad University of Khoy in 2015–2016. This experiment was arranged as factorial, based on RCB (Randomized Complete Block) design with four replications. At the end of the plant growth period, traits such as plant height, number of leaves, stem diameter, number of suckers, number of leaf sucker, sucker weight, sucker height and total biomass were measured [4,5]. Traits such as number of leaves and height of plant were measured by a ruler from the crown (from leaf to leaf tip), for measuring the stem diameter, a digital caliper was used and reported as a centimeter, to measure the traits suckers, suckers were separated from the mother plant and their number was counted and then the height of the suckers, weights of sucker, number of suckers leaves and total biomass of the plant were measured.

2.1. Statistical analysis

Analysis of variance of the data was carried out using SAS software. LSD test was applied to compare means of each trait at $p \leq 0.05$. EXCEL software was used to draw figures.

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Transparency document. Supplementary material

Transparency document associated with this article can be found in the online version at https://doi.org/10.1016/j.dib.2018.12.052.

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