

Pimpinella anisum L.

(1)

(*Pimpinella anisum* L.)

(%96.1 %97.1 %92.4)

(%29.1 %23.9 %5.8)

(/ 777.8)

(/ 715.3)

(/ 673.6)

Apiaceae

(*Ammi majus*)

linuron *Pimpinella anisum* L. :

(1)

Effect of the Herbicide, Afalon on Weeds and Yield of Aniseed Crop, *Pimpinella anisum* L.

G. Ibrahim⁽¹⁾

ABSTRACT

Aniseed Crop, *Pimpinella anisum* L. is one of the important medicinal and aromatic plants in Syria and the world. It has very important economic value, appear in its medicinal and multi-uses. Weeds considered as the greatest obstruct for aniseed production and hand picking is commonly used for weed control. So the investigation was carried out to evaluate the effect of the herbicide, Afalon on the weeds of aniseed and its phytotoxicity. Afalon treatment resulted in high efficacy for the broad leaves weeds (92.4 %, 97.1 % and 96.1 %) for the half rate, field rate and double field rate, respectively and (5.8 %, 23.9 % and 29.1 %) for the narrow weeds. The treatment of double field rate gave a high yield (715.3 Kg/ha.) that was equal to weeded plots (777.8 Kg/ha.), and the field rate treatment (673.6 Kg/ha.) was significantly superior to other treatment. This indicated the importance of spraying aniseed crop with Afalon especially when hand picking not possible. Phytotoxicity effect were not recorded on anise plants. Some other plants were not affected by the herbicide like *Ammi majus* and coriander, those are belong to the same family, Apiaceae.

Key words: Aniseed, *Pimpinella anisum* L., Linuron, Afalon, Weeds.

⁽¹⁾ Dept. Plant Prot. Faculty of Agriculture, Damascus University, Syria.

(Pimpinella anisum L.)

" "

Hemphill and Hemphill,)
) () () (1988
(1998
(Peter, 2000) (Reineccius,1994)

1381 ()
2005 1795 1999
2008 2465

317 827 1190)
(2008) (1) (

Hadid *et*)
(
(1992
(*al.*, 2004

2008

(1)

.(2008-1999)

/ : : :

| | | | | | | | | | |
|------|------|------|-----|-----|-----|------|------|------|------|
| | | | | | | | | | |
| 842 | 1163 | 1381 | 477 | 135 | 283 | 936 | 1028 | 1098 | 1999 |
| 922 | 1311 | 1422 | 422 | 27 | 64 | 946 | 1284 | 1358 | 2000 |
| 1035 | 1432 | 1383 | 409 | 9 | 22 | 1046 | 1423 | 1361 | 2001 |
| 1491 | 1841 | 1235 | 667 | 2 | 3 | 1493 | 1839 | 1232 | 2002 |
| 1450 | 1713 | 1181 | 778 | 7 | 9 | 1455 | 1706 | 1172 | 2003 |
| 1396 | 2303 | 1649 | 706 | 12 | 17 | 1404 | 2291 | 1632 | 2004 |
| 1479 | 2654 | 1795 | 833 | 25 | 30 | 1490 | 2629 | 1765 | 2005 |
| 1337 | 2902 | 2170 | 692 | 27 | 39 | 1349 | 2875 | 2131 | 2006 |
| 1028 | 2066 | 2010 | 800 | 28 | 35 | 1032 | 2038 | 1975 | 2007 |
| 998 | 2459 | 2465 | 625 | 20 | 32 | 1002 | 2439 | 2433 | 2008 |
| 1218 | 386 | 317 | - | - | - | 1218 | 386 | 317 | |
| 829 | 986 | 1190 | - | - | - | 829 | 986 | 1190 | |
| 1144 | 946 | 827 | - | - | - | 1144 | 946 | 827 | |
| 2000 | 44 | 22 | - | - | - | 2000 | 44 | 22 | |
| 988 | 80 | 81 | 750 | 3 | 4 | 1000 | 77 | 77 | |
| 607 | 17 | 28 | 607 | 17 | 28 | - | - | - | |

Pimpinella

Apiaceae

1820 Perrotte L.

.(Al Khatib, 1978) ()

.(2010) / 250 (/ 233) / 1 / 275

1964

0.75 0.5

1980 Petrea .Faillet, 1965 () /

/ 4 WP 50 Afalon
/ 30.85 / 15.2

.Edmund and Milton, 2000

:

(Simon *et al.*, 1984 1987)

(Gangrade *et al.*, 1989;

Hornok, 1992)

Dwyer ;1988)

.(and Ratty, 1997

)

(Gangrade *et al.*, 1989; Hornok, 1992; Chevallier, 1996) (1988

.(Özcan and Chalchat, 2005 Sigh,1998)

:

-

35°56' 31.37"

1050

33°20' 50.71"

:

III

S-8

(2009-2008)

| () | | | () | () | | |
|-------|------|------|------|------|------|--|
| | 2009 | | | 2008 | | |
| 17 | 4.1 | 11.9 | 54.5 | 0.3 | 9.8 | |
| 73.1 | 5.2 | 13.7 | 18 | 5.1 | 11.8 | |
| 29.1 | 8.2 | 16.3 | 6 | 12.2 | 19.6 | |
| 1.5 | 11.1 | 22.7 | - | 12.5 | 23.9 | |
| 11.5 | 13.3 | 28.8 | - | 14.5 | 26.1 | |
| - | 18.2 | 33.7 | - | 19.3 | 32.3 | |
| - | 18.7 | 35 | - | 21 | 38.5 | |
| - | 18 | 34.9 | 1.5 | 320. | 38.3 | |
| 3 | 16.3 | 32.1 | - | 616. | 933. | |
| 9 | 15.3 | 32 | 11.7 | 12 | 25.7 | |
| 45.2 | 10 | 19.1 | - | 9.9 | 19.1 | |
| 26 | 7.1 | 15.6 | 2 | 6.4 | 12.6 | |
| 215.4 | 2009 | | 93.7 | 2008 | | |

(w.p.) pm %50 Linuron :

IUPAC name: 3- (3-4-dichlorophenyl)-1-methoxy -1- methylurea

15

2008-11-15

(CRD)

3

3

/ 15

2009/1/10

() ()

/K₂O 120 :
/ 200 %33

/ 150 %50
. %46

15

(/ 1,5)

(wp% Afalon

/ 0,75)

.(/ 3)

:

-

(

3)

² 1

45 15

(

)

.(Peter, 2000 1998 1987)

: (1955) Tilton Henderson

($\frac{\quad}{\quad} \times \frac{\quad}{\quad} - 1$) 100= %

:

-

45 30

:

-

.(2) 9-1 EWRS

(2)

| | |
|---|-------|
| | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | 5 () |
| 7 | %50 |
| 8 | %50 |
| 9 | |

: -

.Genstat 7

-1

:

| | | | |
|--|-----------------|--------------------------------------------------------------------|--|
| | | | |
| | Amaranthaceae | <i>Amaranthus viridis</i> L. | |
| | Apiaceae | <i>Ammi majus</i> L. | |
| | Myrsinaceae | <i>Anagallis arvensis</i> L. | |
| | Asteraceae | <i>Carthamus lanatus</i> L. | |
| | Dipsacaceae | <i>Cephalaria syriaca</i> (L.) Scrad. ex Roemer & J.A. Schultes | |
| | Chenopodiaceae | <i>Chenopodium album</i> L. | |
| | Asteraceae | <i>Cirsium</i> spp. | |
| | Convolvulaceae | <i>Convolvulus arvensis</i> L. | |
| | Rubiaceae | <i>Gallium aparine</i> L. | |
| | Hypericaceae | <i>Hypericum perforatum</i> L. | |
| | Cruciferae | <i>Isatis tinctoria</i> L. | |
| | Lamiaceae | <i>Molucella laevis</i> L. | |
| | Polygonaceae | <i>Polygonum aviculare</i> L. | |
| | Caryophyllaceae | <i>Vaccaria pyramidata</i> Medik | |
| | Fabaceae | <i>Vicia sativa</i> L. | |

| | | | |
|--|----------|-----------------------------|--|
| | Poaceae | <i>Avena sterilis</i> L. | |
| | Poaceae | <i>Hordeum murinum</i> L. | |
| | Poaceae | <i>Hordeum bulbosum</i> L. | |
| | Poaceae | <i>Phalaris minor</i> Retz. | |
| | Poaceae | <i>Poa annua</i> L. | |
| | Poaceae | <i>Setaria glauca</i> L. | |
| | Apiaceae | <i>Coriander</i> spp. | |

Carthamus lanatus L. :

2010

Carthamus, Convolvulus, :

Avena, Hordeum

:

-2

(3)

(3)

| (%) | | ² / | | | |
|--------------------|--------------------|----------------|------|-------|--|
| | | 45 | 15 | | |
| 9.27 ^a | 6.25 ^a | 61.08 | 65.3 | 67.33 | |
| 45.75 ^b | 28.08 ^b | 29 | 43.7 | 57.08 | |
| 51.85 ^b | 28 ^b | 25.33 | 43.9 | 53.33 | |
| 9.4 ^a | 5.42 ^a | 55.25 | 58.8 | 60.67 | |
| 8.21 ^a | 4.33 ^a | 59.58 | 60.2 | 63.92 | |
| 16.24 | 13.26 | L.S.D. 5% | | | |
| 17.7 | 16.6 | C.V. % | | | |

-3

(4)

7.5 3.7

.² /

(4)

| (%) | (%) | | ² / | | | |
|-------------------|--------------------|-------------------|----------------|-----|-----|--|
| | | | 45 | 15 | | |
| - | ^a 5.83 | ^a 0.25 | 3.7 | 4.5 | 4.5 | |
| 5.8 ^a | 11.1 ^{ab} | ^b 0.83 | 6.7 | 6.8 | 7.5 | |
| 23.9 ^b | 16.8 ^{bc} | ^b 0.83 | 3.7 | 4.2 | 4.5 | |
| 29.1 ^b | 22.7 ^c | ^c 1.4 | 4.7 | 5.5 | 6.1 | |
| 14.2 | 8.4 | 0.45 | L.S.D. 5% | | | |
| 20.5 | 17.9 | 18.9 | C.V. % | | | |

.² / 16.8 11.1

(% 29.1 % 23.9)

(%5.8)

-4

(5)

² /

43.1

(5)

| (%) | | | ² / | | | |
|-------------------|-------------------|-------------------|----------------|------|------|--|
| | | | 45 | 15 | | |
| - | ^a 1.4 | 0.58 ^a | 43.1 | 42.8 | 42.9 | |
| 92.4 ^a | 92.4 ^b | ^b 50.6 | 3.9 | 6.3 | 54.5 | |
| 97.1 ^b | 97.1 ^b | ^b 50.3 | 1.5 | 2.1 | 51.8 | |
| 96.1 ^b | 96.6 ^b | ^b 48. | 1.8 | 2.2 | 50.3 | |
| 1.9 | 4.7 | 9.1 | L.S.D. 5% | | | |
| 0.8 | 2.4 | 2.3 | C.V. % | | | |

% 23.18

(2010) / 1.5

-5

()
/ 777.8

() 0.69

(6

(/ 0.65)

()

(6)

| / | ² 9 / | |
|---------------------|--------------------|---------------|
| 777.8 ^d | 0.69 ^d | |
| 451.4 ^a | 0.41 ^a | |
| 631.9 ^b | 0.57 ^b | |
| 673.6 ^{bc} | 0.61 ^{bc} | |
| 715.3 ^{cd} | 0.65 ^{cd} | |
| 63.7 | 0.05 | LSD 5% |
| 7.2 | 1.8 | CV % |

/ 0.5

30

/ 0.5

/ 433

(Dungarwal *et al.*,1998) / 419

/ 2 (/ 233) / 1

250 / 1 / 275

(2010) /

-6

20-15

Coriander *Ammi majus* L.)

Apiaceae

(*sativum* L.

15 3 2 1.5

/ 3 1.5 1

1 0.5 0.25

REFERENCES

- (1988) .
472
- 290 . (1992) .
(1987) . 412
(2008) .
- Cuminum* (2010) .
cuminum
(1998) . 295
- Al Khatib, A. S. (1978). Chihabi's dictionary of Agricultural and allied Terminology. Librairie duliban, Beirut.
- Chevallier, A. (1996). The encyclopedia of medicinal plants. Walfe Publishing LTD. London . p 44.
- Dwyer, J. and D. Ratty. (1997). Magic and Medicine of plant Reader's Digest General Books, New York.
- Dungarwal, H. S.; P. C. Chaplot; and B. L. Nagda. (1998). Integrated weed management in cumin. Department of Agronomy, Maharana Pratap University of Agriculture and Technology 301-313. (Raj) India, Indian journal of weed science.
- Edmund, J. O. and E. Mc. Milton. (2000). Weed control in Carrots: the Efficacy and Economic Value of Linuron. Hort. Science, 35(6): October 2000.
- Faillet, P. (1965). Results of weed control trials with linuron in crops of celery and leeks. Compte rendu Conference du Comite Francais de Lutte contre les Mauvaises Herbes (COLUMA) 1965 pp. 5 pp.
- Gangrade, S. K; R. D. Shrivastav; O. P. Sharma; B. G. Iyer and K. C. Trivedi. (1989). Influence of micronutrients on yield and quality of Pimpinella anisum. Indian Perfumer, 33 (2): 142-14.
- Hadid, A. A; K. H. Batanouny; A. S. Jabarine; and A. A. Kader. (2004). Proposal for Expanding the Crop Mandate of ICARDA to Include Horticultural Crops.
- Hemphill, J. and R. Hemphill. (1988). Herbs, their Cultivation and Usage. Blandford Press, London.
- Henderson, C. F. and E. W. Tilton. (1955). Tests with Acaricides against the brow wheat mite. J. Eco. Entomol. 48: 157- 161.

- Hornok, L. (1992). Cultivation and processing of medicinal plants. Academic publication Budapest, PP.338.
- Özcan, M. M. and J. C. Chalchat. (2005). Chemical composition and antifungal effect of anise (*Pimpinella anisum* L.) fruit oil at ripening stage. *Journal of medicinal food* 9 (4) 552-561.
- Peter, K. V. (2000). Handbook of herbs and spices, Wood head publishing in food science and technology vol. 1.
- Petrea, V.; M. Stoian and Sarpe, N. (1980). Studies on the tolerance of potato cultivar Ostara to Cosatrin, Afalon and Sencor applied at different rates and dates.
- Reineccius, G. (1994). Source Book of Flavors. 2nd ed. Chapman and Hall, New York.
- Sigh, S. P.; G. P. Rao, and P. P. Upadyaya. (1998). Fungi toxicity of essential oils of some aromatic plants against sugarcane pathogens sugarcane, 2: 1417
- Simon, J. E.; A. F. Chadwick and L. E. Craker. (1984). Herbs: An Indexed Bibliography. 1971-1980. The Scientific Literature on Selected Herbs, and Aromatic and Medicinal Plants of the Temperate Zone. Archon Books, 770 pp., Hamden, CT.

| | | |
|--------------------|------------|--|
| Received | 2011/02/13 | |
| Accepted for Publ. | 2011/04/26 | |