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Mini Review Article



Weed of *Convolvulus arvensis* damage and control methods

Shaima Hassan Ali Al- Abbasi¹, Harith Ahmed Mustafa¹, Ali Talib Hassan Al-Naqib¹, Abdulhamead Adnan¹, Majeed Al-Majmaei², Ali Majeed Hameed², Hassan Ali Handosh Alazzawi¹, Ghufraan Abbas Muhammed al_douri², Arwa Ayob Awad², Qahtan Adnan Majeed¹, Ahmed Dyaa yasin¹

¹Biology Department, College of Education University of Samarra , Iraq.

²Biology of SDI Quality control SDI, Samarra, Iraq

*Corresponding author: bpatil.tkcp@gmail.com

Abstract

Weeds plants are usually propagated by seeds and vegetative mediums. Spreading by seeds is the most common method by which the weeds spread, as many of them produce very large quantities of seeds. Weeds plants cause huge losses in all agricultural fields and in non-agricultural lands, but because of their large presence in every place, people are accustomed to seeing them daily, so they did not appreciate the great damages affected by these pests. Studies in many countries have shown that the losses caused by weeds plants may exceed Total damages affected by insects and diseases combined. The present review paper discusses damages of *Convolvulus arvensis* along with various chemical, mechanical, and biological control methods

Keywords Chemical Control, Mechanical Control, Biological control *Convolvulus arvensis* L.

Introduction

Dissemination and Weeds

Weeds plants can be defined as the outgrowths of plants. The weeds plants have the ability to multiply and spread despite all the obstacles. They are very competitive plants in nature due to their excellence with specifications that help them adapt to grow in different environments. Weeds plants are usually propagated by seeds and vegetative mediums. Spreading by seeds is the most common method by which the weeds spread, as many of them produce very large quantities of seeds. One dandelion plant produces more than 17,000 seeds, and one dodder plant produces about 16,000 seeds, while one long-haired plant produces more than 800 seeds. It is transmitted by the wind, such as saffron, or by water, such as sorrel, or by animals and humans, such as slag, or by agricultural machinery and equipment, which are many types. Weeds plants spread vegetatively with rhizomes and stolons, such as.

Harmful of weeds

Weeds plants cause huge losses in all agricultural fields and in non-agricultural lands, but because of their large presence in every place, people are accustomed to seeing them daily, so they did not appreciate the great losses caused by these pests. Studies in many countries have shown that the losses caused by weeds plants may exceed Total damages affected by insects

and diseases combined (Al-Jubouri, 2003) .The damages affected by the jungle can be summed up in the following ways:

- 1.Reducing the yield: Studies in our country have shown that the weeds cause a reduction in the yield of cotton and sugar beet by at least 70%, wheat and barley yield by about 40%, and maize and rice fields by about 50% (Kraehmer and his group, 2014).
- 2.Reducing the quality of agricultural production: The presence of weeds plants in the fields of crops and the presence of their vegetative and dry parts or seeds in the crop products leads to a reduction in the value of those crops, as is the case in the presence of weeds seeds of wild oats, ziyen and wild mustard With the grains of wheat, barley and flax, and the occurrence of the maiida plant in the cotton fields at the harvest, the quality of fiber decreases. The presence of poisonous weeds plants in natural pastures causes disease and death of sheep bred by MacBean (2010).
- 3.Impact on human health. Many weeds plants cause allergies resulting from pollen of some plants such as thyl. Also, some of the weeds are considered poisonous, such as the grape vine.

4. In addition to the total losses and problems caused by weeds plants, the cost of combating them is represented by the use of machines and equipment. The tools for anti-combat and used laborers are all overlooking the total cost of agricultural production.

***Convolvulus arvensis* L.**

A widespread annual plant that gives its name to a number of plant species belonging to different families. *Convolvulus* is a member of the family Convolvulaceae. The ivy plant includes several types, including field ivy, true ivy, small ivy, ink, crow's cowl, or field ivy *C. arvensis*, Violet ink *C. dorycnium*, marble *C. cephalopodus*, Aladhars *C. Oxyphyllus*, Praised or Alsagmunya, *C. scammonia* ivy fences or a cup judge or young ste, *C. sepium* L. Small Alloah *C. tricolor* In the Maghreb and the Levant, the seal ivy *C. althaeoides* in the Levant, the Maghreb and some areas of the northern Mediterranean basin and Iran, Linear ivy, *C. lineatus* in the Maghreb and few regions of the northern Mediterranean basin, *C. pilosellifolius* in the northern Syrian regions, *C. hystrix* (Littlefield, 2004).

Description of plant *Convolvulus arvensis*

It is a plant that reproduces by seeds and rhizomes, the stem is thin, coiled or creeping. It is (3 m) long, the shaft leaves and the shape of the shape (2-5 cm), floral or white pink with five semi-databas are slightly darker. Flowering occurs in midsummer, when the flowers develop and are funnel-shaped from white to pale pink. Flower display (1.9-2.5 cm), fruit color is a round-shaped (3.2 mm) box containing (2-3 seeds) black seeds or gray color structure. Be a single plant (160. 600 seed) may reach (850 seeds) maintains the seeds in its vitality for (20 years) or more. It grows at the beginning of spring, and it is a light and heat-loving weeds and tolerates drought for a long time, although it produces attractive flowers. However, they are often unwelcoming in gardens as a nuisance to plants due to their rapid growth and suffocation of cultivated plants (Parnell, 2012).

Damages of *Convolvulus arvensis*

Reducing the value and importance of agricultural land, especially in the case of the presence of perennial weeds plants in it, such as Al-Madid, Halfa, and Safranda (Habib, 2005).

Weeds plants are considered a haven for insects and pathogens that may be transmitted from them to economic plants, such as the presence of aphids on the long plant in the winter.

Obstructing the movement of water in irrigation and drainage channels, as is the case in the growth of perennial plants such as wild and sedge reeds, and the presence of long-haired plants on the sides of drains, streams, and rivers. These plants consume huge quantities of water in addition to impeding the movement of water in the canals (Akhtar and Mohammed, 2001).

Control Methods

The methods of combating the jungle are many, and there are several methods for classifying these methods, including categorizing them according to their importance and use, as follows:

Mechanical Control

This method depends on the physical effect on plants, as weeds plants may be buried, uprooted, or cut. To achieve this, machines and tools are used, including manual axes and sickles, or mechanical ones, such as hoes, smoothing machines, and cutting machines, as well as plowing machines (Abrunhosa, et al., 2002).

Burying weeds plants with any of the plowing or softening machines is an effective process for controlling annual weeds plants while they are in the seedling role, especially if the growing tops of them are buried. As for burial of perennial weeds plants, it has little effect as long as its buried parts are capable of forming new growths from below the surface of the soil.

As for the uprooting of weeds plants, it is done by dislocating the root system using cultivators that cut and uproot the roots from the soil. This process is more effective if it is done in a hot and dry climate. It is possible to control the perennial weeds by hoeing, provided that the process of hoeing is repeated several times during the season, after 2-3 weeks have passed after the plants have regained their growth in order to deplete the nutrients stored in their parts under the soil, as is the case in the weeds and wild reeds (Lym and Zollinger, 2000).

Fires can be used to burn weeds plants along the sides of irrigation canals, roads and non-farmland and to control weeds growing between crop lines such as cotton and maize. If fire is used to control perennial weeds such as wild reeds and sedge, it is necessary to repeat the burning process several times during the season whenever these plants regain their growth (Zouhar, 2004).

Chemical Control

Chemical weeds pesticides are the latest research findings of effective means to combat these plants and are considered one of the most effective means in combating weeds of all kinds, whether they are growing with agricultural crops or on irrigation and drainage canals and in agricultural lands such as airports, oil fields, factories and roadsides (Wang, et al., 2016).

The long plant causes many problems with large losses in the total yield of many agricultural crops and a decrease in the specific value of the crop. Chemical control using herbicides is one of the important means in the control program, and chemical resistance ranked first because of the quick and positive results that can be obtained compared to other methods.

(Antar and Al-Kazim, 2008) mentioned that the pesticide glyphosate has a high efficiency in reducing the buds formed

in the plant Al-Madeid, and it was significantly superior to the pesticide Bazkaran and the pesticide Algizacard as it works to prevent the rhizomes or cuttings from forming buds, and the reason may be due to the different method of killing for these pesticides. Where the pesticide glyphosate was used in an applied way to control the plant, where it is sprayed in a mist on the surface of the leaves and remains on them for some time, which take the lead to the killing of the entire plant, [youtie](#) (1994).

And Stephen and Pratt (2002) showed that the pesticide glyphosate is used to combat tall and broad-leaved perennial weeds, whether its roots are superficial or deep, and it has proven that it is effective in combating These weeds is due to the inability of those plants to convert the pesticide from the toxic state to the non-toxic state.

The use of chemical pesticides is blamed on their lack of impact in some cases, their economic cost, their toxic effects on humans, animals, and plants, their survival in the environment, and their random effects that are not limited to a specific extent ([Simberloff, 2009](#)).

Biological Control

This technique is based on natural enemy for weeds plants, provided that it is at the same time harmless to economic plants. Insects, pathogens, parasitic plants, grazing animals, geese, and fish can be used for this purpose. Also, fungal pathogens to control some aquatic weeds plants ([Defago, et al., 2001](#)).

Also, some types of bacteria were used in the fight against the weeds, as the biocide CAMPERICO is a Bacterial bioherbicide whose main component is *Xanthomonas campestris* pv. *Poa* was developed and recorded in Japan as a biocide for the invasive blue annual grass *Poa annua* in golf courses in Japan ([Imaizum, et al., 1997](#)).

Insects have been used to successfully control some weeds plants, such as roe, sap, and enamel. As for grazing animals such as cows and goats, they are used effectively to combat some types of shrubs.

Preliminary observations in the country indicated that some types of beetles can be used to control long-term flowers and seeds, some types of fungi to parasitize the flowering groups of saffron and some types of aphids to parasitize the bitter plant.

Also indicated that *A. verrucaria* and *C. cladosporioides* are biological control agents against *C. arvensis*, where the first fungus significantly reduced the germination of emid seeds, and its crude extract significantly reduced fresh seedlings by 59%, while the second fungus was 78%, and this indicates that fungi have a significant role in the control of emid plant This is in agreement with [Berna \(2009\)](#).

Biological control of *Convolvulus arvensis* L using fungal leaching

The use of fungal filters in the biological control of the weeds is one of the important matters that have drawn attention at the present time, in order to exclude the occurrence of fungal infection of economic crops, that is, they are highly selective. The metabolites secreted in the growth medium (Exudate) differ in their components and effects. The antibiotics present in the filtrates are organic substances that inhibit or kill microorganisms discovered by Alexander Flemck in 1929. The antibiotics produced from fungi are: Paspaline, Nominre, Aflarinine, pencillin, Cephalosporin, Antiamoebin, Patulin, Helnin, and Ploripherin. The toxins secreted by the fungi differ in their chemical formulas, effects, and the degree of toxicity, as their effect takes different forms, such as necrosis, loss of chlorophyll, wilt, inhibition of seed germination, Among the most famous toxin-producing fungi are *Aspergillus*, *Alternaria*, *Claviceps*, *Fusarium* and *Pencilium*. Aflatoxins, which are produced by *A. fluvus*, are the most common and include different types of them Aflatoxins (B1,B2,G1,G2,M1,M2) and Ochratoxin secreted from *A.ocraceus* and Patulin secreted from *P.expansum* and Ergot alkaloids from *Claviceps purpuea* ([Al-Khazraji, 2012](#)).

The researchers ([Zonno and Vurro, 2002](#)) identified many toxins produced by sp. *Fusarium* and tested in inhibiting the seeds of *Orobanche ramosa* and 7 toxins have proven their ability to inhibit germination by 100%. Where ([Tawfik and Ibrahim, 2019](#)) in their study conducted in Egypt showed that the fungus *C. cladosporioides* filtrate affected the growth of the stalk and gave when spraying it in the field experiments a significant difference in reducing the germination rate of the seed pods.

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