THE DESTRUCTIVE ROLE OF CUSCUTA AS A PARASITE

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Abstract

The genus *Cuscuta* is represented by two species; *Cuscuta reflexa and C.europea* in Pakistan (Stewart, 1972). It commonly occurs on woody vegetation showing marked preference for certain species. Remedial measures through chemical control applying different doses of 2-4-D Sodium, Amine and Ester are suggested in this article.

Introduction

The *Cuscuta*, commonly known `Akashbel, Neela Tar and Dodder is a member of the family Cuscutaceae. The *Cuscuta reflexa* is confined mainly to lower altitudes and the *C. europea* to higher in the northern regions of Pakistan. The stem of *C. reflexa* is thicker as compared to *C. europea*, which is a thread like structure with globose flower heads. It is a dangerous parasite to trees and shrubs and is a leafless with long yellowish green or light purplish stem and sweet scented flowers.

It twists the host and establishes itself by haustoria through which it extracts its nourishment from the host plant. It causes considerable damage to some agricultural crops and forest trees. *Cuscuta reflexa* commonly occurs on woody vegetation showing marked preference for certain species like *Zizyphus mauritiana, Z.nummularia, Citrus acida, Vitex negundo, Thevetia nerifolia, Acacia modesta, A.nilotica, Prosopis cineraria, Capparis aphylla, Erythrina suberosa* and *Duranta* sp. The growth of the host retards and ultimately it may die. Sometimes, children just for sheer fun, detach the branches and throw it on another healthy plant which soon establish themselves by haustoria and start spreading rapidly. The propagation is carried by means of animal and water besides human beings. By this exercise, a number of plants are damaged. To probe in the situation, the study was initiated to estimate the extent of damage and their control measures.

Material and Methods

Survey was conducted to select the experimental site in Peshawar district. The site was selected along Kohat Road and suburbs areas. In the experimental area, a number of tree species viz: *Zizyphus mauritiana, Z.nummularia, Citrus acida, Vitex negundo, Thevetia nerifolia, Acacia modesta, Acacia nilotica, Prosopis*

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cineraria, Capparis aphylla, Duranta sp. and *Erythrina suberosa* were found heavenly attacked by the parasite. Chemical control measure was tested under random sampling. The host plants were treated with different doses of 2-4-D Sodium, Amine and Ester chemicals on *Zizyphus mauritiana, Z. nummularia, Citrus acida, Vitex negundo, Thevetia nerifolia, Acacia modesta, Acacia nilotica, Prosopis cineraria, Capparis aphylla, Duranta* sp. and *Erythrina suberosa* to control the parasite. The following parameters were tested, data recorded and analyzed.

Treatments:

T0.	Control	
T1.	2-4-D Sodium	1 lbs/acre
T2.	2-4-D Sodium	2 lbs/acre
T3.	2-4-D Sodium	3 lbs/acre
T4.	2-4-D Sodium	4 lbs/acre
T5.	2-4-D Amine	1 lbs/acre
T6.	2-4-D Amine	2 lbs/acre
T7.	2-4-D Amine	3 lbs/acre
T8.	2-4-D Amine	4 lbs/acre
T9.	2-4-D Ester	1 lbs/acre
T10	2-4-D Ester	2 lbs/acre
T11.	2-4-D Ester	3 lbs/acre
T12.	2-4-D Ester	4 lbs/acre

Results and Discussions

In the history of chemical weed control, the idea of dodder eradication by certain chemical was first born in France. A number of Cuscuta such as *C.subinclusa, C.cephalanthii, C.gronovii, C.pentagona C.sandwichiana, C.salina C.californica C.indecora* are described from Western Hemisphere (Beliz (1985). Essary (1920) described that small patches of dodder in *Lespedeza* and *Trifolium* and *Medicago* sp. have been killed successfully with a 0.3% solution of sulphuric acid. Steven (1918) and Nowell (1923) used 0.5% solution of Sulphuric acid for the destruction of dodder on *Citrus* spp.

Different doses tested above, indicate that the application of 2-4-D Sodium and Amine @ of 3 to 4 lbs destroyed *Cuscuta* sp. up to 86%, without affecting the host plant, but the application of 2-4-D Ester @ 3 lbs killed the parasite without damaging the host. The lower doses of all the chemicals have not shown any

significant results both on crop and parasite. It was further observed that the *Zizyphus* spp. were injured in the first instant, but recovered later on after a few months.

Conclusion

The study concluded that 2-4, D Ester @ 3 lbs/acre diluted in 100 gallons of water can be used to control the parasite. During the survey 10% infestation rate was noted on almost all the species. For control of small scale damages, manual eradication by cutting off the infected branches is possible in the early stages and operation may be repeated 3 to 4 times in a month.

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