*Available online at* www.scholarsresearchlibrary.com

Scholars Research Library

**Scholars Research Library**

**Annals of Biological Research, 2011, 2 (1) : 237-240**
***(http://scholarsresearchlibrary.com/archive.html)***

Annals of Biological Research
Scholars Research Library

**ISSN 0976-1233**
**CODEN (USA): ABRNBW**

# Research of Root Biomass of Lappula microcarpa in Shanjan Rangelands, East Azerbaijan, Iran

**Ghassem HABIBI BIBALANI, Leila JOUDI, Hamideh SHADKAMI**

*Islamic Azad University - Shabestar Branch, Shabestar, East Azerbaijan Province, Iran*

---

## ABSTRACT

*Roots of plants stable soils on slope and provide resistance against the forces that improve slope instability. In NW of Iran (East Azerbaijan Province), rangelands was Utilized with animal grazing and changed to agricultural land use; this vegetation is unsuitable vegetation on slope to stable them. We studied Lappula microcarpa to determine its root biomass characteristics. Data were collected with accidental sampling method (1*1 m) with 10-cm-diameter core in this aria. In total of 20 plots were collected and 100 samples were studied in this research. Minimum, maximum and mean root biomasses of this plant were 1.20, 3.00 and 2.1 gr, respectively.*

**Key word:** Lappula microcarpa, Iran, landslide, soil protection.

---

## INTRODUCTION

Range Ecosystem stabling, optimum and continuum utilization of range without studding and knowing effective factors on its segments and animal pasturage have special importance [6, 10, 11]. There are different methods for evaluating range position, that all of them have special advantages and disadvantages and each of them have different factors such as Species composition percentage, production, coverage, density, Soil position (Soil surface coverage and Erosion), cadaver, birthing, constitution, and succulence Plants were used [5, 2, 9].but estimation of these Parameters are time consuming and expensive. In this research we have studied the amount of under ground Biomass and Lappula microcarpa Species [4] at rangeland area of Shanjan village, Shabestar district, NW Iran. This Parameter needs more attention, but it is one of the determined Factors of stabling position of slope area in that place.

## MATERIAL AND METHODS

Research area is part of Shanjan rangeland from Shabestar distract with distance is about 5 Kilometers from it. This area is hill area and we study on N aspect [9]. This region is component Flora Iran and Turan with elation between 1700-1850 m.

**Fig 1. Lappula microcarpa Species.**

Root biomass was sampled in May and Jun, 2010. For recognition of Species for sampling, we used of accidental sampling method (1*1 m) with 10-cm-diameter core select 20*5=100 samples totally [8] (Fig 2).

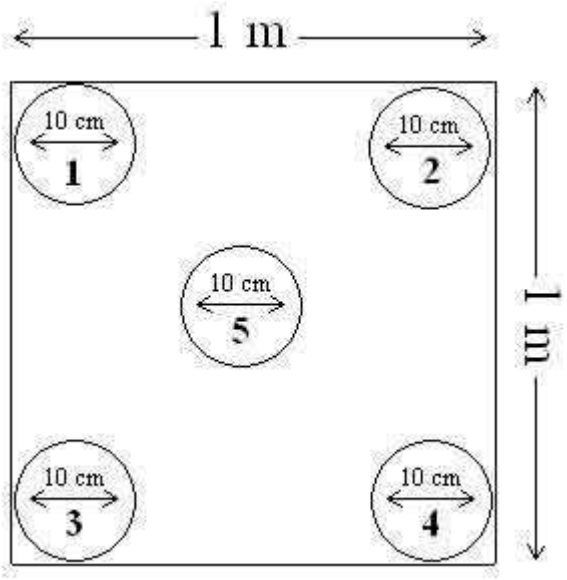


**Fig 2. Sampling design with 10-cm-diameter core in 1*1 m plot [8].**

Produced sapling from area studding Plants after sending to laboratories, they scale fresh weight of under ground part with careful and sensitive scale then dry weight of under ground part of Plant is determined by Avon set after drying in 80˚ c temperature during 24 hours [8].

## RESULTS

Results of this study have been showed that the maximum, minimum and medium root Biomass of Lappula microcarpa in studding area were 9.37, 15.70 and 13 gr, respectively.

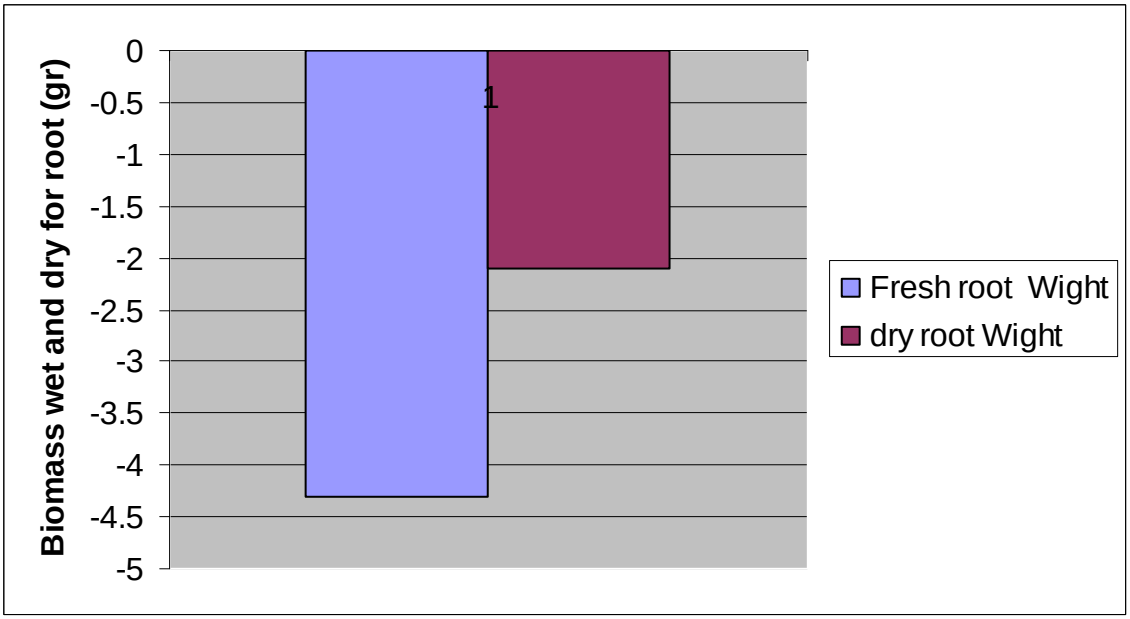


**Fig 3. Lappula microcarpa root weight (fresh and dried weight).**

Root depth Lappula microcarpa was unsteady from 60 to 98 mm, that in average it is about 85 mm and average stem height is about 55 cm.

## CONCLUSION

In total of 20 plots were collected and 100 samples were studied in this research. In total of 100 samples of about 51.16% of root weight have been losses when samples dried.

Soil is the erosion part of main problem on earth that it can be affected by Plants. Soil as a floor for growing can be the best store for soil materials and necessary needs such as root establishment. Vegetal Species can effect on soil chemical and Physical properties [1]. Increasing Lappula microcarpa Species in studying area can cause Specific Biological qualification, and as this Species increase density of Soil Biomass will increase, and also the amount of Soil protection and stabling will increase [10, 11]. So range shrubs that have little germination in Soil surface it will have little effect on soil protection in front of created instability [12].

Bowman et al [3] by dong some research in Fort Coliniz, ranges resulted that vegetal density related to Soil Physical properties. They remarked that Species appearance in each area related to Chemical properties and coverage percent of other Soil properties.

This study has revealed and quantified the Root biomass of the Lappula microcarpa shrub in the Shanjan range lands, the shrub has good biomass and can be used for protection the slopes in this research area and probably also in other areas where the Lappula microcarpa is growing that need studding separately in another areas. It is a pioneer study, and the results have given estimations of the root biomass of the Lappula microcarpa for the first time in Shanjan rangeland. It is

need for studding such as this for all shrubs and plant in this area and another place for recognizing the best plant for stabilizing soil erosion.

**Acknowledgement**
The authors greatly acknowledge the scientific support from Islamic Azad University- Shabestar Branch to the first author for this study. The first author is one of Scientifics member of Islamic Azad University- Shabestar Branch and this paper is a part of his project with title of " Study on Root development forbs and shrubs on Shanjan Range of Shabestar area and effect of them on soil surface and subsurface erosion control" that have been worked in 2010. The authors also express their sincere appreciation to the anonymous reviewer(s) for their helpful to improve paper quality.

## REFERANCE

[1] Ardekani, M., Ecology, University Tehran, **2003**, Pages 68-70.
[2] Bidlock, E.J., Voughan, J.E., and Devald, C. L., *Journal of Range Management*, **1999**, 52: 661- 665.
[3] Bowman, R.D Muller and W.J.Mc ginnies, *G. Range Manage*. **1985**. 38: 325-328.
[4] Gharaman, A., *forest and rangland research organization*, **2003**, volumes 1-24,.
[5] Mogaaddam,M.R., Ecology descriptive and Astistic Vegetal Coverage, University Tehran, **2001**, Pages 285.
[6] Mozaffarian, V., A Dicionary of Iranian, Latin, English, Persian. Tehran, *Farhang Moaser* **2007**, 310.
[7] Pabot, R.D.& R.F. Beck, *Journal of Range Management*, **1990**. 27 (1): pp. 550-552
[8] Ping Xiaoyan, Guangsheng Zhou, Qianlai Zhuang, Yunlong Wang, Wanqing Zuo, Guangxu Shi, Xianglei Lin, Yuhui Wang, *Geoderma*, **2010**, 155, 262–268
[9] Salimi faed, A., Looki To History and Geographical Shabestar, Tasuj, Sufiyan, Tehran Sibe Sorkh, **2003**, Pages 234-244.
[10] Shadkami-Til, H, Bibalani, Gh., *International Journal of Academic Research*, **2010**, 2 (6), in press.
[11] Shadkami-Til, H, Bibalani, Gh. *International Journal of Academic Research* 3 (1), **2011**. in press.
[12] Watson, A.C., Philips and M. Marden. *Plant and Soil*, **1999**. 217: 39-47.