Nature and Science

Websites:
http://www.sciencepub.net/nature
http://www.sciencepub.net

Emails:
naturesciencej@gmail.com
editor@sciencepub.net

MARSLAND PRESS
Multidisciplinary Academic Journal Publisher

An Allometric growth estimation and ethnobotanical studies of *Hippophae rhamnoides* subsp. *turkestanica* from Oshikhandas and Bagrot valleys of district Gilgit, Gilgit-Baltistan, Pakistan

Nelam Shahzadi[1], Tika Khan[1&2], Shamsher Ali[3]

[1]Department of Biological Sciences, Karakoram International University, Gilgit, Gilgit-Baltistan, Pakistan
[2]Integrated Mountain Area Research Centre, Karakoram International University, Gilgit, Gilgit-Baltistan, Pakistan
[3]Chemistry Department, Karakoram International University, Gilgit, Gilgit-Baltistan, Pakistan

Abstract: Sea buckthorn, an *Eleagnaceae* shrub known as 'Burro, Kono, Shasho, Chanxho' in Shina language spoken in Gilgit-Baltistan has a long history of human affiliation. Traditionally it is used for fencing, stomach pain (abdominal pain), its fired coal used for teeth cleansing, for teeth sensitivity fired coal mixed with table salt, goiter, blood pressure, heart attack, healing heel cracks, soil stabilization, soil fertility, fodder, income generation, anti-aging, skin diseases including ring guard, teeth whitening, berries also used for blackening and shining of hair, firewood, fired coal used for iron heating and fired coal due to high heat used during sharpening of metal cutting equipment like knives, saw, reaping books and hatchet. The conclusion is that this plant has more significant and more useful for human being as well as animals. Results revealed that mean leaf area of Bagrot valley is relatively greater (1.258 cm) than Oshikhandas (0.464 cm). Similarly, mean plat height in Bagrot is less (3.08 ft) than Oshikhandas (5.811 ft). Mean weight of 100 berries was 6.902 g and 100 seeds was 0.6177 g. Mean stem diameter recorded from both valleys was 4.22 cm. People from Oshikhandas having more male as compared female plants need to plant female plants to have berries to contribute into their income generation.
[Nelam Shahzadi, Tika Khan, Shamsher Ali. (2016). An Allometric growth estimation and ethnobotanical studies of Hippophae rhamnoides subsp. turkestanica from Oshikhandas and Bagrot valleys of district Gilgit, Gilgit-Baltistan, Pakistan. Nat Sci 2021; 19(6);26-28].ISSN1545-0740 (print); ISSN 2375-7167 (online). http://www.sciencepub.net/nature. 4.doi:10.7537/marsnsj190621.04.

Key words: Seabuckthorn, Eleagnaceae, Medicinal Plants, Anti-aging, Anti-inflammatory, wonderful plant, Omega

Introduction:

The Sea buckthorn are shrub belong to family Eleagnaceae scientific name of sea buckthorn is *Hippophae rhamnoides* and common name is sea buckthorn, Sibarian pineapple , Sea Berry,Santhorn or Swallowthornand vernacular name is Buro, shasho, chanxo, Kono and jao The sea buckthorn leaves are shedding in fall that why they are called deciduous shrub . Leaves, Berries and stem are used for different purposes (**Zeb, 2004).** Typically this plant is 4.45 ft in height that rapidly develops an extensive root system capable of soil stabilization and soil fertility. Sea buckthorn has been used for soil erosion control. They can survive temperature as low as 40c and are both drought and Fruit ripening occurs about 100 day after pollination.

Sea buckthorn has different varieties on the basis of size and berries color ranging from yellow to bright orange in color. The leaves of seabuckthorn are sometime use for making green tea for cough. (**Omafra, 2016).** Most people use seabuckthorn leaves for making green tea for body weight loss and health problems, but most people use berries for abdominal pain and barriers are also use for heart attack. **(Sep, 2016).**

Seabuckthorn barriers have strong antioxidant and it is use for cancer, heart diseases and control high blood pressure. And it is also use for anti-wrinkle at face. **(Lee et al., 2011**) Sea Buckthorn Berry is use for skin diseases such as ring guard pimple and anti-aging and it is also use for heart diseases e.g. myocardial infarction and it is best source of omega. **(Taylor, 2016)** Traditionally, Sea Buckthorn barriers are used for anti -aging and skin diseases. Seabuckthorn berries are used for healing wound eg.krack at heel etc. The barriers are also use to prevent gum bleeding and it is also for cosmetics product. **(Elston, 2010)** seabuckthorn ssp are distributed in Europe, Mongolia, Canada, Russia, Pakistan include Gilgit Baltistan (**Wikipedia).**

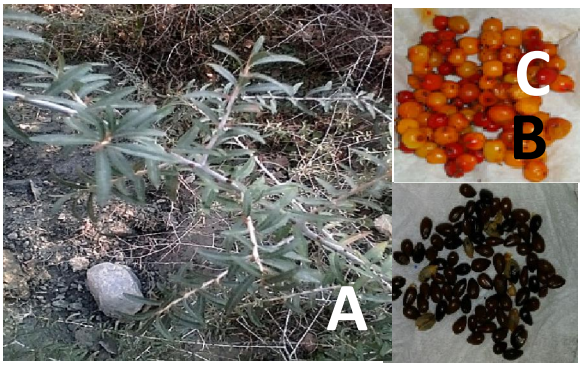


Figure 1: A shows a male plant, **B** shows berries collected from Oshikhandas, **C** shows seeds

Material and Methods

Sampling

Ten plants from each valley i.e. Bagrot and Oshikhandas, have been studied for this research. 10 leaves and 100 berries from each plant have been collected for the study.

A total of 17 male and 19 female of age above 60 have been interviewed using a standard questionnaire from Bagrot and Oshikhandas Valleys of district Gilgit, Gilgit-Baltistan, Pakistan.

Research site:

Oshikhandas and Bagrot valleys are two major valleys in the district Gilgit falling at the eastern side of the district.

Parameters studies:

For allometric growth estimated, leaf length, leaf width, leaf area, shoot height, berry weight, seed weight and stem diameter of ten plant from each valley have been studied. Plant selection was carried out randomly. Ethnobotanical uses and detailing has been documented from old people using a questionnaire from both valleys.

Allometric data particularly seed and berry weight have been recorded in the water quality lab using electronic balance.

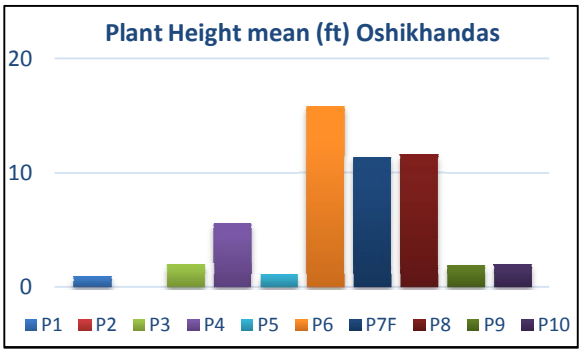
Analysis:

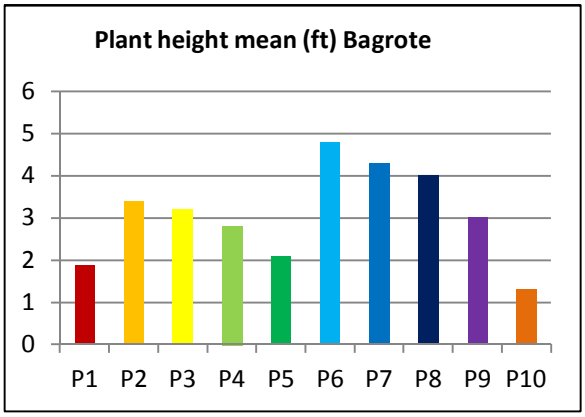
MS XLstate has been used to process the data.

Results and discussion

Analysis Data from Oshikhandas:

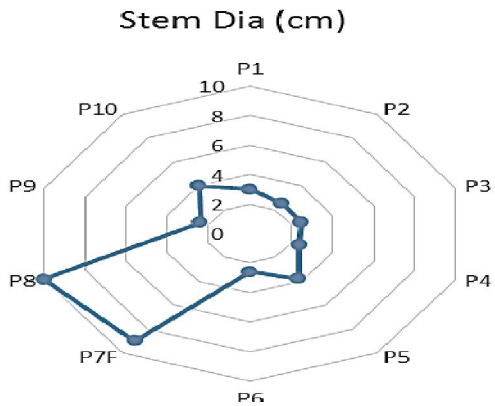
Seabuckthorn plant collected from Oshikhandas valley vary in size with a minimum plant height is 0.9 ft., maximum height is 15.8 ft. and average plant height is 5.811 ft.





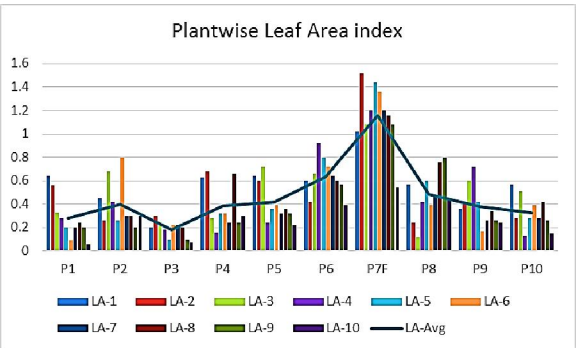
In Oshikhandas maximum area of leaf is 1.16 cm^2, minimum area of leaf is 0.183 cm^2. Average area of leaf is 0.4638 cm^2.

Stem diameter in both valley oshikhandass and Bagrot is 4.22 cm.



Analysis data from Bagrot

Seabuckthorn plant are vary in size maximum plant height is 4.8 ft., minimum height is 1.3 ft. Average plant height is 3.08 ft.



In Bagrot Seabuckthorn Maximum area of leaf is 1.794 cm^2, minimum area of leaf is 0.937 cm^2 and average are of leaf is 1.258 cm^2**.** The area of Bagrot Seabuckthorn have bigger leaves as compared to Oshikhandas.

Ethnobotanical results

65% people name it as 'Buro' while 30% people called it Chanxo. Allopathic Use (Avg) personally 51% and in family 47%. People are agreed (95 %) upon its two varieties on the basis of its color.

People (99 %) observe a significant change in population over the last decade. Similarly, 99 % are infavour of significant decrease while 60% favour increase significantly.

Weight of 100 berries = 6.90235 g

Weight of 100 seed 0.6177 g

Conclusion:

In Oshikhandas male: female ratio is quite uneven and is better in Bagrot. Berry quality is also good in Bagrot.

6/2/2021

Acknowledgement/ author Biography

First author is a student at the department of Biological Sciences, Karakoram International University, Gilgit, Pakistan. This research is part of semester assignment.

Recommendation:

We suggest and recommend farmer from Oshikhandas to bring female plants from Bagrot to improve male female ratio and variety as well. This plant offers great potential for farmers to improve their household income. It promotion and conservation also helps conservation of wildlife equally.

References

1. Taylor, J. 2016. 10 Reasons Why You Need Sea Buckthorn Berry Oil In Your Life. Retrieved from www.naturallivingideas.com/sea-buckthorn-berry-oil-benefits on November 29, 2016.
2. http:\\www.Omafra.gov.com
3. H. I. Lee et al (2011). Anti-visceral obesity and antioxidant effects of powdered sea buckthorn (Hippophaerhamnoides L.) leaf tea in diet-induced obese mice. Food and Chemical Toxicology, 49(9), 2370-6.
4. Elston, D.M. (2010). Demodex mites: Facts and controversies. JAAD. Volume 28, Issue 5, Pages 502–504. DOI: http://dx.doi.org/10.1016/j.clindermatol.2010.03.006. Retrieved from http://www.cidjournal.com/article/S0738-081X(10)00030-1/abstract on November 29, 2016.
5. Sep. 2016. (A study published in the September 2011 issue of the journal Food and Chemical)