CLIMATE EVALUATION OF THE MORELS HABITAT IN UTROR VALLEY KALAM DISTRICT SWAT

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ABSTRACT

This paper is based on a research project carried out to study "Role of Morels in the socio economic status of the rural community of Utror valley. Kalam District Swat, Utror valley supports five species of Morels including *Morchella hybrida, Morchella angusticeps, Morchellu escuhmta, Morchella delicosa* and *Morchella conica*. 10 sites plots 20mx20m quadrate size) were taken covering slopes, and altitudes, through transact walk with in the study area at approximately 200m (400 steps) distance. Soil samples were collected from the study area and thus investigated for climatic parameters. The results show that the climate of Utror valley is quite suitable and is fit for growth of Morels.

INTRODUCTION

Mushrooms fall in fungi. Fungi bear no functional greenery, with out chlorophyll fungi do not need to rely on photosynthesis for their energy supply; instead they survive by feeding off other organic matter, dead or alive and with in the kingdom of mushroom, there are nearly 2000 verities known to be esculent (Chang 1999; Palazon, 1992). Morels are commonly known as spongy mushroom. Morels the most edible forest products receiving increase attention national and international levels (Schlosser & Blatner, 1995). The morels are classified into three Broad categories (Bunyard, 1994; Sharma, 1993).

A. Yellow morels; It includes *Morchella exculenta, Morchella delicosa, Morchella crasssipes*.
B. Black Morels: It includes *Morchella angusticeps, Morchella elata, and Morchella conica*.
C. Half Morels: It contains *Morchella semilibera*.

Study area

The present work is confined to Utror valley Kalam, Swat, located at the extreme north of Swat District. Khyber Pakhtunkhwa, Pakistan Utror valley is located from 35°-18' to 35°-52' North- latitudes and 72°-12' to 72°-33' East longitudes over the globe. It is bounded in the east by Ushu valley, in the Southeast by Kalam, in the South by Bahrain and in the west by Chitral. Utror proper is the main settlement of the valley with total area of 38733 hectare. The Utror River is one of the main tributary that form river Swat at Kalam.

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Objectives

To examine suitability of climate for the growth of morels with respect to air temperature, relative humidity and altitude.

MATERIALS AND METHODS

MATERIALS

Meter rod, Basket, Thermometer, Digital camera, Computer with other accessories, Altimeter.

METHODS

A total of 10 sites plots 20mx20m quadrate size) were taken covering slopes, and altitudes, through transact walk with in the study area at approximately 200m (400 steps) distance. (Sanchez *et al*., 1998). In this way 70% of total habitat was studied. The morel species found in the selected plots were collected and mounted on herbarium sheets and identified with the help of recent literature.

Statistical analysis

The data collected in the field for all parameters were statistically evaluated using the parameters like standard deviation and co-relation variance for checking the data accuracy.

RESULTS

Table 1. Air temperature (°C) of Utror valley Kalam Swat District (Morels habitat)

S.No	Plots	Air temperature (°C)						Statistics	
		TI	T2	T3	T4	T5	T6	SD	V
1	1	16.6	16.6	16.6	16.6	16.6	16.6	0.00	0.00
2	2	16.5	16.5	16.5	16.5	16.5	16.5	0.00	0.00
3	3	16.7	16.7	16.7	16.7	16.7	16.7	0.00	0.00
4	4	17.2	17.2	17.2	17.2	17.2	17.2	0.00	0.00
5	5	17.1	17.1	17.1	17.1	17.1	17.1	0.00	0.00
6	6	17.6	17.6	17.6	17.6	17.6	17.6	0.00	0.00
7	7	17.1	17.1	17.1	17.1	17.1	17.1	.0.00	0.00
8	8	17.1	17.1	17.1	17.1	17.1	17.1	0.00	0.00
9	9	17.4	17.4	17.4	17.4	17.4	17.4	0.00	0.00
10	10	17.3	17.3	17.3	17.3	17.3	17.3	0.00	0.00

Table 2. Relative humidity of Utror valley Kalam Swat District (Morels habitat)

S.No	Plots	% Relative humidity						Statistics	
		% RH1	% RH2	% RH3	% RH4	% RH5	% RH6	SD	V
1	1	70.52	70.52	70.52	70.52	70.52	70.52	0.00	0.00
2	2	70.52	70.52	70.52	70.52	70.52	70.52	0.00	0.00
3	3	70.41	70.41	70.41	70.41	70.41	70.41	0.00	0.00
4	4	69.61	69.61	69.61	69.61	69.61	69.61	0.00	0.00
5	5	69.72	69.72	69.72	69.72	69.72	69.72	0.00	0.00
6	6	70.11	70.11	70.11	70.11	70.11	70.11	0.00	0.00
7	7	68.40	68.40	68.40	68.40	68.40	68.40	0.00	0.00
8	8	70.20	70.20	70.20	70.20	70.20	70.20	0.00	0.00
9	9	70.10	70.10	70.10	70.10	70.10	70.10	0.00	0.00
10	10	70.00	70.00	70.00	70.00	70.00	70.00	0.00	0.00

Table 3. Altitude (ft) of Utror valley Kalam Swat District (Morels habitat)

S.N	Plots	Air temperature (°C)						Statistics	
		Al	A2	A3	A4	A5	A6	SD	V
1	1	6500	6500	6500	6500	6500	6500	0.00	0.00
2	2	7200	7200	7200	7200	7200	7200	0.00	0.00
3	3	7700	7700	7700	7700	7700	770.0	0.00	0.00
4	4	7500	7500	7500	7500	7500	7500	0.00	0.00
5	5	7800	7800	7800	7800	7800	7800	0.00	0.00
6	6	8000	8000	8000	8000	8000	8000	0.00	0.00
7	7	8500	8500	8500	8500	8500	8500	0.00	0.00
8	8	8500	8500	8500	8500	8500	8500	0.00	0.00
9	9	8500	8500	8500	8500	8500	8500	0.00	0.00
10	10	8700	8700	8700	8700	8700	8700	0.00	0.00

DISCUSSION

i. Air Temperature

The climate of Utror valley is more pleasant with evergreen natural beauty and humid conditions. The temperature of the air remains low through the year wit a coldest month of January, when the temperature of the year is below freezing point and hottest month of June when it reaches 20°C. For the present study, the temperature often plots haven been taken. The highest mean temperature of 17.6°C was recorded at plot No. 2. the mean temperature of the remaining plots ranging from 16.6 °C-17.4 °C with some up and down.

It is evident from the table 1.0 that plots showing high elevation shows low temperature, where as the reverse conditions seems at low elevation, sites, No description of a physiological environment is complete without notation of the existing temperature conditions. Temperature provides a working conditions for the plant functions. More than, it provides the necessary energy for some processes. For example radiant energies absorbed in photosynthesis and released in respiration. Certain winter hardy plants by virtue of their structural and chemical modification are able to survive periods of low temperature but unable to renew growth until proper temperatures are again established to provide the necessary working condition. It also plays a vital role in the limits of the growing season, crop production, chilling of leaves and freezing of plants.

ii. Relative humidity

According to Kalages 1958 the relative humidity of the air refers to the ratio expressed as a percentage between the amount of moisture in the atmosphere and the amount that could be present, without condensation, at the same temperature and pressure. Generally it plays a significant role in the determination of growing season and also caused chilling of plant leaves and stem. It is also a source that caused variation in the intensity of evapotranspiration from the plant leaves in particular area and also one of the factors that closely linked with the alteration in temperature at any degree at any point.

The current study generally consists of the observation of the relative humidity taken at Utror valley. The highest relative humidity of 70.52 recorded at plot No. I having lowest temperature, whereas the lowest of 68.4% recorded at plot No. 7 with a mean temperature of 17.1°C and an altitude of 8500 feet (table 2.0) The relative humidity of the remaining of 8 plots varies between 70.4% and 60.3% with relative variation in temperature.

iii. Altitude

In mountains region like Utror valley, altitude is the most important factor determining the local climate. It influences both temperature and moisture conditions, especially the characteristics of the alpine plants are accounted for to high degree by the altered light conditions. The refractions of the atmosphere with an increasing elevation also serve to increase transpiration rates of plants. A total of 10 plots have been taken for the observation ofMorchella species in which pot No. 1 located at lowest altitude of 6500 ft and plot No. 10 at High altitude of 8700 feet. The elevation range of the remaining eight plots varies from 6500 feet to 8700 feet with gradual ups and downs. It is evident from table 3.0 that the temperature condition of the valley decreases with as increase in the elevation and represents an inverse proportion, where as the elevation of Utror

valley is directly proportion to the relative humidity of the area. The variation in the altitude, temperature and relative humidity of the area provides a more suitable condition for the growing and cultivation of different species of Morchella and a hopeful sign for intensive cultivation in future.

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