

Comparison Phenophases of *Mimosa Pudica* and *Desmodium Triflorum* in Grazed Condition in Barandabhar Forest, Chitwan, Nepal

Niroj Paudel^a, Rajesh Shrestha^{b*}

^aDivision of Biological Resource Sciences, Kangwon National University, Chuncheon, 24341, South Korea

^bDepartment of Physics, Tribhuvan University, Kathmandu, Nepal

^aEmail: nirojjirauna@gmail.com

^bEmail: rajeshshrestha402@gmail.com

Abstract

The plant became grazed the study site - the pasture of Barandabhar corridor forest was marked into three zones, and the phenological behavior of *Mimosa pudica* and *Desmodium triflorum* was determined. The study site - the pasture of Barandabhar corridor forest was marked into three zones, and the phenological behavior of *Mimosa pudica* and *Desmodium triflorum* (30 individuals sampled randomly from the marked zone) . Phenophase is described in case of seasonal variation of Barandabhar forest as well as adjoin area of forest. The present study will be valuable for the management of medicinal herbs in Chitwan Nepal.

Key Words: Barandabhar forest; *Mimosa Pudica*; *Desmodium triflorum*; Seasonal variation; Nepal.

1. Introduction

The flora of Barandabhar forest is dominated mainly by sal (*Sorea robusta*) forest and partly by riverine, tall grassland and short grassland, the forest has range of climate of season's winter, spring and monsoon with subtropical climate. *Mimosa pudica* is also called as shy plant, sleepy plant. Touch-me-not plant in local language. A common pasture legume in the Queensland, Australia, the southern Sudan, Cote d'Ivoire, Uganda, Southern Brazil, Venezuela, Colombia, South-East Asia and the Indian subcontinent, *Desmodium triflorum* is known as 'Amor do campo', 'Trevinho do campo' 'Amorsinho Secco' and 'Carrapicho' in Brazil, 'Hindu Pujali' in Sri Lanka, 'Pacpaclanhao' in Philippines, 'Hieraba Cuartillo' in El Salvador, and 'Jungali-Methi' in Nepal. *Desmodium triflorum* is small trailing herbs. Seasonal Variation in phenophases of *Mimosa Pudica* [1]. Jha [2] studied the growth form and phenology of the herbaceous vegetation in a grazed pasture at Biratnagar.

* Corresponding author.

He observed that all the dominant grasses (*Axonopus compressus*, *Brachiaria distachya*, *Chrysopogon aciculatus*, *Cynodon dactylon*) and legumes (*Alysicarpus vaginalis*, *Desmodium triflorum*) of the said pasture had prostrate growth form. The early summer showers in March triggered the growth of new shoots and leaves from the subsurface perennating buds in all the dominant species, and all of them had active growth phase till August- September. He further observed sporadic seedling emergence in March, flowering between September-March, and seed maturation and dispersal from November to May in all the dominant legumes of the said pasture. Earlier studies conducted by the Kenly Earth Science (Canada) (Anonymous 1986) have reported 0.64 to 1.22% organic carbon, 10.3:1 to 12.1:1 C/N ratio, 0.09 to 0.14% nitrogen, and 0.0003 to 0.0006% phosphorus in the farm soils of Biratnagar, Nepal. Jha [3] studied seasonal variations in p^H , nitrogen, phosphorus, potassium and organic carbon in the soils of a grazed pasture of Biratnagar and recorded 4.6 (September) to 5.7 (January) p^H , 0.096 (September) to 0.185% (May) nitrogen, 0.027 (September) to 0.073% potassium (January), 0.004 (September) to 0.005% phosphorus (January and May), 1.34 (September) to 3.35% organic carbon (May), and 13.96:1 (September) to 15.22:1 (May) C/N ratio. Mandal [4] reported the range of crude proteins between 6.8 to 15.6% in the shoots of some tropical grasses of eastern Nepal. Joshi and his colleagues [5-6] found the highest concentration of nitrogen followed by potassium, calcium, phosphorus, and magnesium at vegetative stage in the standing crop of certain grasses and forbs of Garhwal Himalaya. Dhaubhadel and Tiwari [7] estimated 10.2% crude proteins and 1.6% fat in an alpine pasture (3800 m altitude) of Kaski district of Nepal. Bhattarai [8] reported 11.9% crude proteins and 14.1% total sugars, whereas [9] reported 15.6% crude proteins and 5.9% lipids in the shoots of six-month-old pot-cultured *Paspalum distichum* and *Alysicarpus vaginalis*.

2. Material and Methods

The study site - the pasture of Barandabhar coordinotr forest was marked into three zones, and the phenological behavior of *Mimosa pudica* and *Desmodium triflorum* (30 individuals sampled randomly from the marked zones) such as germination, vegetative growth, flowering, fruiting, seed maturation, and leaf fall were carefully observed and recorded at weekly intervals [1]. When a phenophase was noticed in about 10% individuals under observation, the phenophase was considered to be initiated, and phenophase was considered to be in peak when it occurred in more than 80% individuals [10].

3. Results

Although sporadic seed germination in *Mimosa pudica* and *Desmodium triflorum* occurred in March, most of the seeds germinated in the last week of June respectively. Vegetative growth in *Mimosa Pudica* occurred between March and August. *Mimosa Pudica* flowered from August to April but flowering was in a peak in April - May, and October - November only. Fruiting in the plant occurred from October to May, whereas seed maturation was observed between Novembers to May. Leaf fall in *Mimosa Pudica* occurred mainly between November - December [1], In case of *Desmodium triflorum* is similar result was obtained.

4. Discussion

The pH of the pasture soil harbouring *Mimosa pudica* an *Desmodium triflorum* population was acidic (pH 5.8 -

6.1; 5.9-6.0). It may not have adverse effects on *Mimosa pudica* and *Desmodium triflorum* as many tropical grasses and herbaceous are tolerant to low pH [11]. The organic carbon in the pasture soils (2.2- 3.6%) in the present study was much higher than the farm soils (0.84 to 1.29%) of Barandabhar (Anonymous 1986). Especially Paudel N [1] it may be due to the fact that in continuous cropping systems there is a steady depletion of organic carbon whereas under pasture a higher equilibrium content of soil carbon is maintained which is in balance with gains from net primary production and losses from decomposition. Further, on the annual basis, the concentration of nitrogen, phosphorus and potassium in the pasture soil were lower than that of typical tropical grassland (N 0.26%, P 0.03% and K 0.11%) [12]. Medina[13] suggested that the reason for the low representation of legumes in tropical American savanna might result from the low levels of soil phosphorus which hinder the formation of N- fixing symbiosis with soil Rhizobium strains. Paudel *et.al* [14] found the midland pasture in Nepal. This result is also supported [1, 14]. Valuable evolution and management of land pastures in Barandabhar corridor forest. The similarities result will obtained from the next *Desmodium triflorum* as well as in *Mimosa pudica* in same environmental condition in Barandabhar forest.

5. Conclusion

The present study support the valuable land pasture in the Barandabhar forest and its adjoining area. Chitwan, Central Nepal. The phonological change is occurred in case of herbs like *Mimosa pudica* and *Desmodium triflorum* which is the valuable medicinal plant in low land region in Nepal.

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