SOME SPECIES OF *ADIANTUM* FROM THE SHIVAPURI NATIONAL PARK, CENTRAL NEPAL

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ABSTRACT
Four species of ferns belonging to genus *Adiantum* and family *Adiantaceae* were collected from Shivapuri National Park (ShNP). These were *Adiantum capillus-veneris* L., *Adiantum caudatum* L., *Adiantum philippense* L., and *Adiantum raddianum* C. Presl. Among these, *Adiantum raddianum* is reported for the first time from Central Nepal.

Key Words: ferns, *Adiantaceae*, Kathmandu

INTRODUCTION
Ferns are found in all climatic zones of Nepal except high Himalayan zones. The protected areas including the Shivapuri National Park (ShNP) are some of the major habitats for their occurrence of fern species. ShNP is the closest park from the capital city Kathmandu, which harbors a large number of fern species. The most of the fern species are herbaceous; they are shade and moisture loving plants. The distribution of the species are greatly affected by the climatic factors from east to west of the country. There is general decrease both in species diversity and population density from east to west region of the country. The altitude of ShNP ranges 1630 m to 2730 m and experiences subtropical to lower temperate types of climate. The common vegetation is following:

In lower belt (up to 1900 m) *Schima-Castanopsis* forests were found, the dominant trees were *Schima wallichii*, *Castanopsis indica*, *Castanopsis tribuloides*, *Alnus nepalensis*, *Eurya acuminata*, *Prunus cerasoides*, other trees associated with them were *Choerospondias axillaris*, *Pyrus pashia*, *Betula alnoides*, *Myrica esculenta*, *Myrsine capitellata*, *Berberis asciatica*. *Alnus nepalensis* was found in moist shady area. Pine forests comprising *Pinus roxburghii* at lower belt and *Pinus wallichiana* in upper belt were found in open drier areas. The other trees associate tree species were *Eurya acuminata*, *Schima wallichii*, *Myrica esculenta*, *Pyrus pashia*, *Eriobotrya dubia*, *Albizia julibrissin*, etc.

In the middle belt (2000 to 2300 m) Mixed Oak forests were found. The dominant trees were *Quercus lanata*, *Rhododendron arboreum*, *Cyclobalanopsis glauca* (*Quercus glauca*). The associated tree species were *Eurya acuminata*, *Lyonia ovalifolia*, *Myrsine semiserrata*, *Quercus semecarpifolia*, *Michelia champaca*, *Rhus succedanea*. *Cyclobalanopsis glauca* were dominant in steep and moist shady places.

In the upper belt (2300 to 2732 m) Oak forests were found. The dominant trees in this belt were *Quercus semecarpifolia*, *Quercus lamellosa*, *Rhododendron arboreum*. The other trees associated with them were *Pieris formosa*, *Ilex excelsa*, *Viburnum nervosum*, *Lindera pulcherima*.

MATERIALS AND METHODS
The Shivapuri National Park is located between 27°45' and 27°52' latitude and 85°15' and
85°30' longitude covering an area of 144 km² of Kathmandu, Nuwakot and Sindhupalchok districts of Central Development region. The park stretches about 20-40km from east to west and about 8-10 km from north to south. The elevation of the park ranges from 1360m to 2,732 m at Shivapuri peak. However most of the park lies between 1600 m to 2500 m above the sea level (Figure 1).

![Figure 1. Shivapuri National Park](image)

Scale = 1:100000

Source: Head quarter of ShNP, Panimuhan (2004)

Fern specimens were collected from Sundarijal and Kakani areas of ShNP at the sorial stage during the month of July 2008. During collection a field note was prepared recording date of collection, locality, altitude, specimen number, occurrence, habitat, longitude and latitude of the area using GPS. Generally 3-4 (at least 2) specimens were collected from the field. Two to three sets of herbarium specimens were prepared. Identification of specimens was made with the help of literature (Beddome 1883, Clarke 1880, Hope 1899-1904, Fraser-jenkins 2008, Gurung 1991, Iwatsuki 1975, 1988, Malla et al. 1986). The voucher specimen has been deposited at Tribhuvan University Central Herbarium (TUCH), Kirtipur, Kathmandu.

**RESULTS AND DISCUSSION**

*Adiantum capillus-veneris* L.

Local vernacular name: Pakhale uneu

Fructification: June-July

Specimen Examined: Nuwakot, Kakani, 2225 m, July 15, 2008, S. Singh 454 (TUCH). Terrestrial on the stone crevices, walls and mossy, rocky slopes of the shady and dry places, common.

Uses: A paste of the plant is applied to the forehead to relieve headache, and to the chest to relieve chest pain.

Distribution: Nepal (WCE, 100-2300 m), widely distributed in the tropical to temperate regions of the world including W. Britain and S. USA.
Adiantum caudatum L.

Local vernacular name: Dan sinki
Fructification: June-July.

Voucher specimen: Nuwakot, Kakani, 2400 m, July 28, 2008, S. Singh 455 (TUCH). Terrestrial, on shady and wet rocks and slopes of forest, rare

Uses: A decoction of plant, about 4 teaspoons twice a day is given for gastric trouble. Juice of the rhizome, about 4 teaspoon three times a day, is given in case of fever. It is also used to treat indigestion.

Distribution: Nepal (WCE, 100-2300 m), China, India, Sri Lanka, Malaya Peninsula, Malaysian islands, Africa, Mauritius.

Note: This is rare fern of Nepal.

Adiantum philippense L.

Synonyms: Adiantum lunulatum

Local vernacular name: Kani uneu
Fructification: June-July

Specimen Examined: Nuwakot, Kakani, 2400 m, July 10, 2008, S. Singh 452 (TUCH). Terrestrial on stones and rock crevices, wall and sandy slopes of shady moist places, occasion.

Uses: Juice of the rhizome is given in case of fever, dysentery and glandular swelling.

Distribution: Nepal (WCE, 60-2400 m), India, Sri Lanka, Myanmar.

Adiantum raddianum C. Presl (Fig. 2)

Synonyms: Adiantum cuneipinnulum

Fructification: April-July

Specimen Examined: Kathmandu, Sundarijal, 1700 m, July 23, 2008, S. Singh 461 (TUCH). Terrestrial on shady moist forest slopes and on stone crevices, rare.


Note: This species was previously recorded only from E Nepal, Mechi zone, Taplejung district, Sinwa-Chhinwa, along the main trekking path to Kanchunjunga basecamp, c. 15 min. walk from Sinwa, on the foot of big rock, at the altitude 850m, Thapa, 27 Jul. 001, T4 (KATH) (Thapa 2002). This is rare in Nepal and in the present specimen it is reported for the first time from central Nepal.
Out of four species, *Adiantum raddianum* is a new record to this area. This is an adventives species from C and S America. This is widely popular in cultivation. Among the remaining species *Adiantum caudatum* and *Adiantum philippense* are rare in Nepal, whereas, *Adiantum capillus-veneris* is commonly distributed.

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