

Plant remains from a new fossil Sonpathri nala area of Western Nepal with remarks on the Palaeoecology of the region during the Middle Miocene

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SUMMARY

Two leaf impressions recovered from the Lower Siwalik sediments of a new fossil locality of Sonpathri Nala area, about 12 km. North-west of Sirsia town in Sharavasti District of Uttar Pradesh, India has been described and discussed in the present paper belonging to two dicotyledonous families Fabaceae and Meliaceae. The modern equivalent taxa indicate that tropical ever green forests with few moist deciduous plants were flourishing around Sonpathri Nala area in the Himalayan foot-hills during Middle Miocene. Further, the presence of some Malayan elements like *Desmodium polycarpum* is phyto geographically important supporting the view of migration of some taxa from South-east Asia to Indian subcontinent during Neogene.

Key words : Leaf impression, Angiosperms, Palaeoclimate, Lower Siwalik, Middle Miocene.

The Himalayan foot hills have resulted from the tectonic processes that have been taking place in the Himalayan – orogeny since the Cenozoic era. The Siwalik Basin, a part of the Himalayan foot – hills, was formed as a foredeep in front of the newly risen Himalaya during Middle Miocene orogeny and was the site of deposition of the Siwalik sediments.

The Siwalik system is 5-6 km. Thick (Wadia, 1975; Saxena, 1976; Krishnan, 1982; Mukherjee, 1984) and is composed mainly of sandstones, grits and conglomerates. On the basis of litho biostratigraphical and palaeontological studies the Siwalik System has been divided into three groups – the Lower, Middle and Upper Siwaliks ranging in age from Middle Miocene to Lower Pleistocene.

The new fossil locality Sonpathri Nala area is situated about 12 km. North-west direction (Text – fig. 1) of Sirsia town at Indo – Nepal border in the Shrivasti district of Uttar Pradesh. The Siwaliks occur here as foot hills running in north east direction. The geological/ palaeontological studies of this particular area have not been carried out so far. Nevertheless, on the basis of lithology of exposed sections these sediments are considered as Lower Siwaliks of Middle Miocene age.

A large number of plant fossils including woods, leaves, fruits, seeds and flowers have been reported from the Siwalik sediments from different fossil localities, viz, Mohand, Hardwar, Kalagarh, Kathgodam, Tanakpur, Koilabas, Seria Naka in Uttar Pradesh & Uttaranchal (Tripathi & Tiwari, 1983; Tripathi *et al.*, 2002, Prasad & Tripathi, 2000). Unfortunately, the new fossiliferous

locality Sonpathri Nala area remained untouched, although this area is very rich in plant fossils. In 2003, a number of well – preserved leaf impressions were collected from this locality and investigation on these leaf-impressions has been undertaken to work out in detail the fossil assemblage of this area to reconstruct the history of past vegetations, palaeoclimate, palaeoecology and phytogeography of the region during Siwalik period.

MATERIALS AND METHODS

Huge collection of leaf – impressions and fruits and seeds were made in 2003 and the well preserved specimens were sorted out and chiseled to clear their morphology. Two leaf impressions have been studied morphologically with the help of either hand lens or low power microscope under reflected light. A lot of herbarium sheets of several extant families and genera were examined at the herbarium of Central National Herbarium Sibpur, Howrah in order to identify them. The terminology given by Hickey (1973) and Dilcher (1974) has been followed. Photographs of the leaves of modern comparable species have also been placed with fossil leaves for their similarity. All the figured specimens have been deposited at Post Graduate Department of Botany, M.L.K.(P.G.) College, Balrampur (U.P.) India.

Systematic Description :

Family – Meliaceae

Genus – *Chisocheton* Blume

Chisocheton palaeopaniculatus sp. nov.

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