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A New Addition to the Siwalik Carnivora from the Tertiary Rocks of Pakistan

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Abstract: A well preserved first right lower molar from the Tertiary rocks of Pakistan is described from Padhri (Middle Siwaliks) District Jhelum, the Punjab province, Pakistan. It essentially differs from the known material of the genus *Sivapanthera* both in morphology and size. The name *Sivapathera padhriensis* is being proposed to this new addition.

Key words: Tertiary, *Sivapanthera,* morphology

INTRODUCTION

Carnivores although fragmentary in nature, are the most interesting of the Siwalik mammals. They represent a great variety of genera and species. Order Carnivora includes three suborders as (I) Creodonta, (ii) Fissipeda, (iii) Pinnipeda Illiger, 1811. But most recently Wilson and Reeder[1] have paid a special attention to order Carnivora and their studies on family level indicate that Creodonta is the sister group to order Carnivora. They organized the order Carnivora into two suborders as Feliformia including felids, herpestids, hyaenids, viverrids and Caniformia including canids, ursids, mustelids, odobenids, otarrids, Phocids and procyonids. Wilson and Reeder[1] emerged the suborder Pinnipeda in Califormia, placing them in a separate Order would make the Carnivora paraphylectic[2-6]. Simpson[7] divided family felidae into five subfamilies, out of these five, the four subfamilies are extinct, while only family felinae consists of three extinct and three living genera. Wilson and Reeder[1] divided family felidae into three subfamilies. The genus *Panthera* and *Acinonyx* of Simpson[7] are upgraded as subfamilies, Pantherinae and Acinonychinae by Wilson and Reeder[1]. Similary the subgenera *Panthera* (*neofelis*) and *Panthera* (*uncia*) are upgraded at generic level, as *Panthera, uncia* and *neofelis.* There are few genera of subfamily Felinae. Comparative and anatomical studies of the specimen under study have shown that this belongs to genus *Sivapanthera.* Two species of the same genus are already described naming *Sivapanthera brachygnathus*[8] and *Sivapanthera potens*[9] but *Sivapanthera padhriensis* (Sp. Nov.) is being described for the first time.

Abbreviations

Br.Mus: Brithish museum of Natural History, London
P.U.P.C: Punjab University Paleontological collection, stored in the Department of Zoology, Lahore (Pakistan)
G.S.I.: Geological survey of India, Calcutta
L: Maximum preserved anteroposterior crown length of tooth
W: Maximum preserved crown width of tooth
CI: Crown shape index (W/L x 100)
M_1: First lower right molar
mm: Millimeter

Systematics

Class	Mammalia, Linnaeus
Subclass	Theria, Haswell
Infraclass	Eutheria, Gill
Superorder	Ferae, Linnaeus
Order	Carnivora, Bowdich
Suborder	Feliformia, Wilson and Reeder
Superfamily	Canoidea, Simpson
Family	Felidae, Gray
Subfamily	Felinae, Trouessart
Genus	*Sivapanthera,* Kretzoi
Species	*Sivapanthera padhriensis,* (Fig. 1)

Type: A right first lower molar (P.U.P.C. No. 2001/12).

Locality: Padhri, Jhelum district, the Punjab province, Pakistan.

Horizon: Middle Siwaliks

Hypodigm: Type only

Diagnosis: *Sivapanthera padhriensis* is of large size with well-defined and deep masseteric fossa, M_1 with

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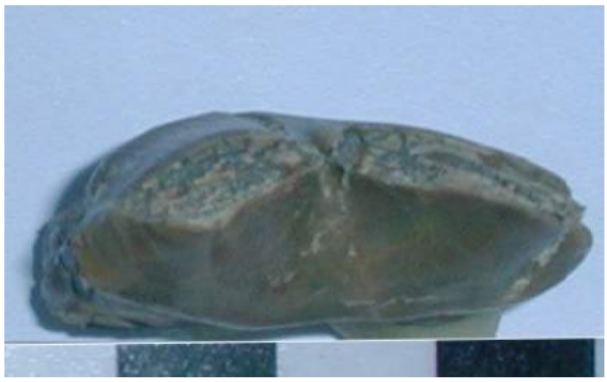
I)



ii)

iii)

Fig. 1: *Sivapanthera padhriensis* (sp.nov) (P.U.P.C. 2001/12). An isolated right first lower molar, collected from Padhri, Jhelum district, the Punjab province, Pakistan. (I) inner view, (ii) crown view, (iii) outer view

protoconid longer than paraconid and metaconid is rudimentary.

Description: The specimen under study includes a first lower molar of right mandibular ramus. The roots of the tooth are also well preserved. The specimen is in an excellent state of preservation and at late stage of wear. It is also narrow crowned tooth (Table 1). The principal conids are excellently preserved. Anteroposterior diameter of protoconid is greater than that of paraconid, while the transverse diameter of paraconid is greater than that of protoconid. The tooth is broad to the base while becomes sharp and narrow to the summit of crown. The buccal side of the conids show more wear than that of lingual side. The posterior cusp is rudimentary and sharp. It is also broad to the base and narrow anteriorly. The root of paraconid is more prominent and broad than that of protoconid root.

Table 1: Comparative dental measurements (mm) of M_1 (P.U.P.C.NO.2001/12) of *Sivapanthera padhriensis* (sp.nov.) to the other species of the genus *Sivapanthera*

	Sivapanthera padhriensis P.U.P.C.NO 2001/12	*Sivapanthera potens* G.S.I.No.D222	*Sivapanthera brachygnathus* Br.Mus.No.16573
L	32.70	19.50	22.50
W	14.40	9.50	11.50
CI	44.36	48.71	51.11

DISCUSSION

Lydekker[8] described three mandibular ramii from the Siwaliks, he gave the name one of them as *Felis non det*; allied to *Felis pardus* and other two as *Felis* (*Cynaelurus*) *brachygnathus*. Mathew[10] retained these names and stated that *Cynaelurus pleistocaenicus* was a synonym of *Felis brachygnathus*. Kretzoi, later on, considering the two right ramii as generically distinct from one another and also from *Felis* proposed the name *Sivapanthera lydekkeri*. Pilgrim's arrangement was retained by Colbert[11]. Later on, Simpson[7] rightly pointed out that *Sivapanthera* was the valid name, the other two being invalid. Comparative dental measurements show that the specimen under study has much higher values of anteroposterior and transverse diameter than that of other species of the same genus, indicating that, this is a new addition to Siwalik carnivora and has not been described by any former worker; working on Siwalik carnivora. So it requires the best need to erect a new species and the name *Sivapanthera padhriensis* is being proposed after the name of the locality.

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