



Monkeydactyl: Pterosaur Species

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Why in News

The **new pterosaur fossil was discovered in the Tiaojishan Formation of Liaoning, China**, and is thought to be 160 million years old.

It has been **named *Kunpengopterus antipollicatus***, also **dubbed “Monkeydactyl”**.

Tiaojishan Formation

- Geographically, the Tiaojishan Formation is **widely distributed in western Liaoning Province and the neighboring northern Hebei Province (China)**.
- This formation is lithologically composed of intermediate lava and pyroclastic rocks, interlayered with basic volcanic rocks and sedimentary deposits.
- It **contains abundant and well-preserved fossil plants**, including leaves, seeds and fruits, permineralized rhizomes and wood.

LOCATION OF MONKEYDACTYL FOSSIL



Evidence of a sharp toothed tree climbing dinosaur with opposable thumbs has been discovered and experts are calling it the "Monkeydactyl"



Key Points

- **About Pterosaurs:**
 - The pterosaur species were **reptiles**, close cousins of dinosaurs and the **first animals after insects to evolve powered flight**.
 - They evolved into **various species**, while some were as large as an F-16 fighter jet, others were as small as paper airplanes.
 - They **flourished** during all periods (**Triassic, Jurassic, and Cretaceous**) of the **Mesozoic Era** (252.2 million to 66 million years ago).

- **About the Monkeydactyl Fossil (*Kunpengopterus antipollicatus*):**
 - “**Antipollicatus**” in ancient Greek means “**opposite thumbs**”, and it was attached to the name because the researchers’ findings **could be the first discovery of a pterosaur with an opposed thumb**.
 - It could **likely be the earliest-known instance of the limb**.
 - It is **far older than the one identified in 2019**.
 - Paleontologists had identified that species as **a pterosaur that lived over 77 million years ago** in what is **Western Canada** today.
 - Named **Cryodrakon boreas**, it was believed to be one of the largest flying animals, which “flew over the heads of dinosaurs”, with a wingspan of **over 10 metres**.
- **Opposability of the Thumb:**
 - **About:**
 - Opposability of the thumb is defined as being able to “**simultaneously flex, abduct and medially rotate the thumb**” in a way that one is able to bring the tip of the thumb to touch the tips of the other fingers.
 - Along with humans, some ancient monkeys and apes also had opposable thumbs.
 - Humans, however, have a **relatively longer and distally placed thumb**, and larger **thumb muscles**.
 - This means that humans’ tip-to-tip precision grip when holding smaller objects is superior to non-human primates. This is the reason that humans are able to **hold a pen, unscrew an earring stopper, or put a thread through a needle hole**.
 - **Monkeydactyl and Opposability of the Thumb:**
 - The research team scanned the fossil of *K. antipollicatus* using micro-computed tomography (micro-CT), a technique making use of X-ray to image an object.
 - By studying its forelimb morphology and musculature, they suggest that *K. antipollicatus* could have used its hand for grasping, which is likely an adaptation for **arboreal life** (living in trees).
 - The grasping hands of primates developed as a result of their life in the trees – an opposable thumb made it easier for the common ancestor of all primates to cling on to tree branches.

Source:IE