



Aztec Hummingbirds and Indian Sunbirds

Why in News?

Recently a study found that the **loss of a key gene, FBP2** makes hummingbirds more **efficient at breaking down sugar** to use it for energy.

- Hummingbirds' hovering flight, a seemingly effortless suspension in air, is achieved by burning sugar in their flight muscles at a blisteringly fast rate.

What are Hummingbirds?

▪ About:

- Hummingbird, **native to American continent**, has approximately **350 species which are found in Iridescent colours**. These birds are **comparable to India's Sunbirds**.
- Aztecs referred to them as **Huitzilin** or '**A ray of sun**'.



▪ Size:

- These are small birds, barely 5cm long and weigh 2 grams.

- **Humming:**
 - Their signature '**Hum**' is created by beating the wings upto **50 times per second**.
- **Manoeuvrability:**
 - They can **hover majestically** as they sip nectar from a flower (mostly Tubular flowers such as Lantana and **rhododendron**), and even fly backward.
 - Relative to their body mass, hummingbirds have the **highest metabolic rate** (calories burnt per minute) **among vertebrates**. Most of this energy comes from nectar.
 - **Rapid sugar uptake by their digestive system** ensures that they utilise energy from nectar ingested just a few minutes ago.
- **Mimicry and Dance:**
 - Hummingbirds are **capable of vocal mimicry** like parrots and some songbirds.
 - They are also able to **align their muscular movements with auditory sensations** that come to their ears creating a **dance**.

How are Hummingbirds similar to Sunbirds?

- **About:**
 - Indian Sunbirds, though **unrelated to Hummingbirds** share many **common features** through convergent evolution. They are part of **Nectariniidae family**.
 - Though slightly larger, the sunbirds can **hover briefly**, and go for bright, tubular flowers. They are **critical pollinators of the 'Flame of the Forest'**.
 - As the energy demands of hovering is very high, **sunbirds need to 'perch' while feeding, unlike Hummingbirds**.



- **Habitat:**
 - They live in **tropical forests, inland wetlands, savannas, and scrubland in Africa, southern Asia, the Middle East, and northern Australia**.

Note: Flame of the forest is a leguminous tree, *Butea frondosa*, native to Eastern India and Myanmar,

having hanging clusters of scarlet flowers.

What is the Significance of Recent Research?

- Recent genome studies have shown that hummingbirds lost the **gene (FBP2)** for a key enzyme involved in gluconeogenesis around the time when hovering appeared.
- While **intense exercise in humans can lead to a spike in blood glucose** levels due to **gluconeogenesis**. That is not the case in hummingbirds.
 - **They have a unique metabolism** that allows them to efficiently use energy from nectar.
- This study **could lead to new insights into energy metabolism** and potential therapeutic applications for humans.

Note: Gluconeogenesis is a process that transforms non-carbohydrate substrates (such as lactate, amino acids, and glycerol) into glucose.

[Source:TH](#)

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