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Extended Abstract
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Pathology Summit 2018: Comparative hematology of apparently healthy free-living wild birds from the orders Apodiformes and Passeriformes in Zaria Kaduna State, Nigeria - Samson James Enam - Ahmadu Bello University, Nigeria.

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Research has reputable the basic hematological parameters of five species counting 20 of Ploceus luteolus (Little Weaver), Apus caffer (White-Rumped swift), Quelea (Quelea à bec rouge), Euodice cantans (African Silver-Billed) and Euplectes frascisca (Northern Red Bishop) from apparently healthy wild birds in Zaria, Nigeria. Apus caffer had the highest average hematocrit (46.25 ± 1.43%), hemoglobin concentration (15.87 ± 0.58 g / dl) and E. cantans had the average erythrocyte number highest (5.24 ± 0.32x1012 / l), while P. luteolus recorded the lowest average hematocrit (34.45 ± 1.73%), hemoglobin concentration (12.15 ± 0.59 g / dl) and the number of erythrocytes (3.71 ± 0.15x1012 / l), respectively. Apus caffer again had the highest mean corpuscular volume while the mean corpuscular hemoglobin concentration was highest for P. luteolus (35.41 ± 0.51 g / l). The average number of leukocytes was highest for A. caffer, 2.62 ± 0.31x109 / l, and lowest for E. cantans, 0.63 ± 0.08x109 / l. Apus caffer also had the highest mean values for heterophiles (2.62 ± 0.31x109 / l) and lymphocytes (2.01 ± 0.23x109 / l). Euodice cantans obtained the lowest average counts for heterophiles (0.04 ± 0.02x109 / l) and lymphocytes (0.54 ± 0.08x109 / l). The heterophile / lymphocyte ratio, an important indicator of prolonged stress, was highest for E. cantans (1.95 ± 1.90) and lowest for E. frascisca (0.12 ± 0.02).

The largest and most diverse order of birds is Passeriformes, perching birds. ... Passeriformes have an elongated gallbladder and ceca which are generally small or barely visible. The Apodiformes Order consists of three families: Trochilidae (hummingbirds), Apodidae (swifts) and Hemiprocnidae (arboreal swifts).

Conventionally, the order of Apodiformes birds delimited three living families: swifts (Apodidae), arboreal swifts (Hemiprocnidae) and hummingbirds (Trochilidae). In the Sibley-Ahlquist taxonomy, this order is elevated to an Apodimorphae super-order in which the hummingbirds are separated into a new order, the Trochiliformes. With nearly 450 species identified to date, they constitute the most diverse order of birds after passerines.

As their name suggests ("without feet" in Greek), their legs are small and have a limited function apart from perching. The legs are covered with bare skin rather than the scales (scales) of other birds. Another common feature is long wings with short, sturdy humerus bones. The progression of these wing features has provided the hummingbird with ideal wings for hovering. Hummingbirds, swifts and crested swifts share other anatomical similarities to each other, as well as similarities (especially with regard to the skull) with their closest living relatives, the owlet-nightjars. The owlet night owls are apparently convergent with the closely related Caprimulgiformes, which form a Cypselomorphae clade with the Apodiformes.

Evolution

Apodiformes have evolved in the northern hemisphere. Eocypselus, a primitive sort known from the Upper Paleocene or the Inferior Eocene from north-central Europe, is somewhat difficult to attribute; it is considered a primitive Hemiprocnidae. This suggests that the main lines of Apodiformes diverged shortly after the Cretaceous-Paleogene limit. However, the perch version of Eocypselus' foot on which this theory is founded can just as easily be a symplesiomorphy. Most researchers believe that at present this genus cannot be unequivocally attributed to either the Apodiformes or the Caprimulgiformes. The Early Eocene Priapus, found in England, is similar to both an embryonic swift and aegialornithid, which are in some ways intermediate between swifts and nocturnal jars. Fossil evidence shows the existence of swifts during this period in Europe. At that time, most of Europe had

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a humid subtropical climate, perhaps comparable to the south of modern China. For a map of the Early Eocene Land - Medium, see the Paleo Map Project; note here that the Caucasus Mountains and the Alps did not yet exist and that aegialornithids were probably present in North America. At the conclusion of the Eocene (around 35 MYA), primitive hummingbirds began to diverge from related jungornithids; the Middle Eocene Parargornis (Messel, Germany) and the Upper Eocene Argornis, found in present-day southern Russia, belong to this lineage. Cypselavus (Upper Eocene - Lower Oligocene of Quercy, France) was either a primitive Hemiprocnidae or an aegialornithid.

The placement of the Aegialornithid is not entirely clear. Various analyzes place them close enough to the Apodiformes to be included here, or in the unique line of the owl-nightjar in the Cypselomorphae. A passerine is a bird of the instruction Passeriformes, which comprises more than half of all bird species. Sometimes called perching birds or songbirds, passerines are distinguished from other orders of birds by the arrangement of their toes (three pointed forward and one toward the rear), which facilitates the perch, among other characteristics specific to their evolutionary history in the Australaves.

With more than 140 families and some 6,500 species identified, Passeriformes is the largest order of birds and among the most diverse orders of terrestrial vertebrates. The passerines are divided into three sub-orders: Acanthisitti (Wrens from New Zealand), Tyranni (sub skins) and Passeri (oscines). Passerines contain several groups of brood parasites such as viduas, cuckoos and cowherds. Most passerines are omnivores, while shrikes are carnivores.

The standings "passerines" and "Passeriformes" are derived from the scientific term of the house sparrow, Passer domesticus, and finally from the Latin term passer, which refers to sparrows and similar small birds.

The order is divided into three sub-orders, Tyranni (suboscines), Passeri (oscines) and Acanthisitti basal. Oscillators have the best control of their syrinx muscles among birds, producing a wide range of songs and other vocalizations (although some of them, such as crows, do not sound musically to humans); some like the lyrebird are accomplished imitators. New Zealand acanthisittids or wrens are tiny birds limited to New Zealand, at least in modern times; they have long been placed in Passeri.

Pterylosis or feathers in a typical passerine bird

Most passerines are slighter than typical associates of other avian orders. The heaviest and largest passerines are the Thick-billed Raven and the largest common crow breeds, each exceeding 1.5 kg (3.3 lb.) and 70 cm (28 in). The superb lyrebird and certain birds of paradise, due to very long tails or caudal covers, are generally longer. The smallest passerine is the short-tailed pygmy tyrant, measuring 6.5 cm (2.6 inches) and 4.2 g (0.15 oz.).

Anatomy

The foot of a passerine has three toes pointing forward and one toe pointing back, called the anisodactyl arrangement, and the back toe (hallux) joins the leg at about the same level as the front toes. This arrangement allows passerines to perch easily on branches. The toes do not have a strap or joint, but in some cotingas, the second and third toes are joined to their basal.

The passerine leg contains an additional special adaptation for perching. A tendon at the back of the paw from the underside of the toes to the muscle behind the tibiotarsus will be automatically pulled and tightened when the paw bends, causing the foot to curl and become rigid when the bird lands on a branch. This allows passerines to sleep perching without falling.

Most passerines have 12 tail feathers but the superb lyrebird has 16, and several spinach from the Furnariidae family have 10, 8, or even 6, as is the case with the wired tail of Des Murs. Species suitable for climbing the trunk of the tree, such as the creeper and arborists, have stiff tail feathers which are used as accessories during climbing. The extremely long tails used as sexual ornaments are represented by species from different families. A well-known example is the long-tailed widow.

Conclusion:

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there were significant interspecies differences ($p < 0.05$) for these hematological parameters and this could, among other factors, be associated with differences in disease response and increased energy demand as illustrated by A. caffer (Apodiformes) who had the highest mean values for almost all parameters; due to the fact that A. caffer flies higher and faster and spends a lot of time in the air than the Passeriformes studied, hence the physiological increased need for an adequate gas exchange.

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