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Anatomical Structure of the Limb of White-nest Swiftlet (*Aerodramus fuciphagus*) and White-headed Munia (*Lonchura maja*)

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Abstract

This study was conducted with the aim to examine the anatomical structures of the limb of white-nest swiftlet (*Aerodramus fuciphagus*) to determine the reason why the birds are not able to walk, stand and perch while standing. In addition, an attempt was made to compare the results with the white-headed munia (*Lonchura maja*), which has similar body weight and appearance. Four left limbs from each species were examined macroscopically using stereomicroscope. The bone and muscles of both species were measured and compared. The limb muscles of white-nest swiftlet were twice smaller than the white-headed munia. The tibial bone was approximately similar in length, but the tarsometatarsal bone of the white-nest swiftlet was shorter than the white-headed munia. The digits of the white-nest swiftlet were also shorter than the white-headed munia. The tibial bones for both species were taken for histological examination and the results revealed no significance difference between the two species. Four groups of muscles namely the biceps femoris, semimembranous, semitendinosus and gastrocnemius from each bird were also taken for histological examination. The muscle sections were stained with H&E and Masson's Trichome. Histologically, the white-nest swiftlet had smaller sized limb muscles compared to the white-headed munia. Similarly, the muscle bundles of the white-nest swiftlet were also less than the white-headed munia. In conclusion, the short tarsometatarsal bone and digits, and small limb muscles could be the reason why the white-nest swiftlets are not able to use their limbs for walking, standing and perching.

Keywords: White-nest swiftlet, white-headed munia, bone, muscles