

**Abstract:**

Geckos (Gekkota) are a diverse group of squamate reptiles. The species richness of geckos is associated with a wide variety of sex determination systems. We can encounter male and female heterogamety, environmental sex determination, or asexuality in this group of reptiles. The diversity of geckos makes this group very interesting for studying of the evolution of sex determination. Due to the large number of species, we know the type of sex determination in just a fraction of taxa. The genus *Phelsuma* has been little studied in this respect and, with one exception, published data are not very reliable. In this thesis, sex determination in *Phelsuma laticauda* and *Phelsuma nigristriata* was investigated using an incubation experiment. I proved that both species have environmental sex determination. The effect of incubation temperature on morphological characteristics was also investigated in hatchlings. The possible persistence of this effect into adulthood was re-tested in one year old geckos.