

## **Abstract**

Regulation of total evaporative water loss (TEWL) is crucial for the adaptation and survival of reptiles in diverse environmental conditions. These losses vary among species depending on the humidity of their habitats. Species of the family Eublepharidae, geckos inhabiting environments ranging from deserts to rainforests, have recently been studied in detail regarding TEWL regulation. Results from these studies revealed significant variability in TEWL values among species, strongly influenced by the aridity of their habitats. Skin permeability appears to play a key role in regulating TEWL, while scale size seems to have minimal impact on this variability.

This thesis focuses on cutaneous water loss in geckos of the family Eublepharidae, with an emphasis on the role of lipids. The aim is to analyze the lipid content in the skin of these geckos and its impact on TEWL in the context of adaptations to various environmental conditions. Additionally, the thesis examines the qualitative lipid composition of the skin and its differences among species from distinct habitats.

The results show significant interspecific differences in the amount of lipids contained in the analyzed shed skin. The species differ significantly in the amount of lipids on both the dorsal and ventral parts of the body. The amount of lipids negatively correlates with the habitat aridity index, indicating a higher lipid content in the skin of species living in arid regions. The amount of ventral lipids was identified as the best predictor for explaining differences in TEWL among species. High-resolution mass spectrometry using direct infusion and two-dimensional comprehensive gas chromatography with mass spectrometric detection was used to analyze lipids extracted from the shed skins of geckos from environments with varying aridity. The results showed that lipid composition differs among species, without clear clustering based on habitat type or phylogenetic relatedness.

## **Key words**

Eublepharidae, evaporative water loss, habitat aridity, lipids, reptiles, skin