

Microbiology - Beatrice DeMarco

Pouch Presentation by *Macropus rufus*, Red Kangaroo for Cytological Analysis

By Beatrice Francis Catherine DiDomenico
Class of 2020 - Major: Microbiology

Abstract:

This research analyzed the normal flora of the captive red kangaroo (*Macropus rufus*) pouch. Behavioral training techniques were applied to further train the animal to allow for pouch sampling. *Ad libitum*, scan sampling, and focal animal sampling are behavioral procedures applied to determine a baseline of behaviors for female red kangaroos in captivity. This baseline was utilized to design Behavioral Shaping Plan as per the guidelines mandated by the Association of Zoos and Aquariums (AZA) and Staten Island Zoo. This Behavioral Shaping Plan was curated to develop training techniques with a specific training goal of pouch sample collection. Both Diff-Quik and Gram staining procedures were utilized to determine the presence of prokaryotic and eukaryotic cells of the captive female *Macropus rufus* pouch. Light microscopy was utilized to capture and view images of the cells gathered from pouch samples. This research identified that the *Macropus rufus* pouch has a presence of both eukaryotic and prokaryotic cells. The pouch contains a higher presence of epithelial cells compared to prokaryotic cells. Additionally, as per biochemical testing, the presence of *Pseudomonas aeruginosa* was identified. This research developed a catalogue of eukaryotic and prokaryotic cells present in the captive female *Macropus rufus* pouch.