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*Evaluation of an innovative approach for sensory enrichment in zoos: semiochemical stimulation for captive lions (*Panthera leo*)*

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Abstract

*Despite improvements in zoo housing and management conditions over the last years, zoo animals may still present undesirable behaviours, such as aggression, stereotypies, boredom and a general absence of natural behaviours. In order to improve animal welfare, researchers are constantly looking for tools to enrich the environment and increase sensory information. Semiochemicals carry important information and are already in use for domestic and wild species. The aim of the current study was to evaluate their impact on the behaviour of captive lions. The behaviour of 18 African lions (*Panthera leo*) living at Aqualeon Safari Park, Tarragona, Spain was recorded during four different experimental conditions: (i) no intervention (baseline); (ii) Cat Facial Pheromone F3 in gel-diffuser blocks; (iii) Cat Appeasing Pheromone (CAP) in gel-diffuser blocks; and (iv) placebo blocks. The schedule consisted of six days with exposure to each condition and three days without. It was repeated twice. The statistical analysis showed a number of differences: animals exhibited longer periods of 'follow' behaviour when exposed to F3 than control or placebo; and longer periods of 'play' behaviour during F3 than control, placebo or CAP, although there was also a significant difference between CAP and placebo vs control. The lions also 'ran' more during F3 than during all other conditions and 'walked' more during F3 than during control or CAP; walking time was also significantly higher during placebo and CAP vs control. These results suggest that semiochemicals affect the behaviour of lions in captivity and might be considered and studied more thoroughly as potential tools to improve welfare.*

Keywords: *animal welfare, behaviour, cat, lion, pheromones, zoo*