Tobacco was smoked by over 1.1 billion people in 2015, making nicotine one of the most commonly used drugs in the world (World Health Organization, 2016). Illicit trade in cigarettes undermines effective health, safety, and taxation policies and promotes criminal activity (Titeca, Joossens, & Raw, 2011). Dogs working at ports and customs have been trained to detect illicit cigarettes and research has shown (Mahoney et al., 2014) rats can detect tobacco-soaked filters. In the current study, rats were trained to respond to filter samples of 21 cigarette brands and not to filter samples of controls (e.g., coffee, tape). Training resulted in average hit rates ranging from 91% to 100% and false alarm rates ranging from 2% to 5%. A series of tests were then conducted with 15 untrained cigarette brands to measure generalization. Two tests conducted after simultaneous training resulted in
hits on 38% and 49% of generalization samples. These results indicate modest generalization from trained to untrained cigarette brands, with performance improving as the number of brands trained increased. After training cigarette brands sequentially, the hit rate on generalization samples reached 67%. The findings of this study suggest that further research is needed before pouched rats can be employed in practical applications as illicit tobacco detection animals.