NOSE-LICKING GOOD

TASTE REACTIVITY AS A TOOL FOR THE RAPID ASSESSMENT OF FLAVOR RESPONSES IN CATS

BY: NANCY RAWSON, AFB INTERNATIONAL

To influence a cat's choice, we must understand **HOW** cats make choices.

THE DATA commonly used in determining palatability measure the final outcome of a cat's choices: intake ratio, total consumption and first choice. These final outcomes do not inform fully how cats choose. Further, the "palatability" of a product is not solely a characteristic of the product, but is actually the result of a complex interaction between the animal consuming it and the item being consumed. These factors together determine the animal's ultimate choice. With careful analysis of the microstructure of their behavioral reactions, we can identify the animal's immediate affective (positive or negative) response to a particular food, and assess the processes underlying the outcomes. Such assessment may include whether the first choice was the first approached, and whether the taste or the smell of a product was most influential in determining preference. These additional components take into account how cats choose and provide valuable information about the qualities and characteristics of a product that influence choice.

The study of "taste reactivity" began in the early 1970's with studies asking whether human infants, shortly after birth, exhibited instinctive responses to taste stimuli. This work revealed two types of patterns reflecting polar opposite affective reactions – positive (hedonic) and negative (aversive). Tastes that are naturally associated with nutrient value, such as sugars for humans, are inherently pleasant and evoke facial expressions that involve smacking of the lips, tongue protrusion and a relaxed facial expression. Tastes commonly associated with potentially hazardous compounds, such as bitter, are typically considered unpleasant by humans and elicit facial expressions that involve visible muscle contraction in the nasal area, lip retraction, head shakes and gaping mouth movements. Research has shown that these microstructural behavioral patterns are observed across species, including primates, rats, hamsters and horses. These stereotypic reactions reveal the **immediate** affective response to a flavor stimulus and provide an instantaneous readout of whether the sensory experience is positive or negative.

Prior to AFB's work in this area, few studies have been done describing affective responses to flavors found to be clearly preferred or avoided by cats. We have recently demonstrated that cats, like other mammalian species, exhibit positive and negative taste reactivity responses rather similar to those of other mammalian species. The immediate and innate nature of these responses provide powerful and rapid insight into an animal's experience of a food or flavor, and can also reveal behaviors that the pet owner may be observing and using to infer 'enjoyment' of a food by their pet. By combining careful behavioral analyses with traditional palatability assessments, flavor systems can be tailored to the felines' particular sensory experience and decision-making process.

Selected References: Berridge, 2000; Hanson et al., 2015; Jankunis, 2013; Steiner, 1978

For more information on AFB International's taste reactivity research, contact **Dr. Nancy Rawson** at nrawson@afbinternational.com or visit AFB online at afbinternational.com or palatantsplus.com.

AFB International®