

## REVIEW ARTICLE

# SEMIOCHEMISTRY IN HIGHER ANIMALS: PERCEPTION AND EXPRESSIVE PHYSIOLOGY

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**Abstract:** *Odor biology has accomplished conformist role in shaping co-evolution of plant-animate existence of the planet ensconced upon inter communicating linkages other than audio-visual reciprocation. Semiochemicals comprising significant fractionation of Volatile Organic Compounds (VOCs) constitute pool of natural odor be classified as pheromones and allelochemicals with subclasses. Objective of the review lies in pointing out brief insight of the formative and transducing mechanism for conventional plant originated volatile molecules (not aiding the purpose of sex) in higher animals and manifestation of inhalation in their physiological kinesics emphasizing onto cat (*Felis catus*) attractant molecules from various plant families discovered till present along with comparative behavioral analysis. The illustrative methodology of olfaction in vertebrates and higher brain structure for semiochemicals of plant origin frame the distributary pathways of odorant perception via main olfactory bulb for conventional VOCs and accessory olfactory organs like vomeronasal organ (VNO) for pheromones entrusting G-protein coupled receptor (GPCR) dependency especially in mammals. The numbers of intron-less coding sequences for olfactory receptors (OR I and OR II) considerably reduces in high end mammalian evolutionary stem leading to pseudogene constitution. The decade old story of distinct behavioral concoction found in subfamilies of Felidae with response to cis- trans configured active compound (Nepetalactone) from the genus *Nepeta* and matatabilactone, actinidine like hallucinogen from species other than *Nepeta* was correlated with recent discovery of prolonged drug like response of cat to iridoid compounds (Isodihydronepetalactone and isoiridomyrmecin) and seven Gas-Chromatography (GC) identified Non-steroidal anti- inflammatory drug (NSAID) compounds from non-aerial portion of *Acalypha indica* plant. With the analysis of unit behavioral aspect elaborated in literature and performed bioassay, it was found that though the reactive function to the latter was analogous to 'catnip response', the exact pathway for olfactory signal transduction yet not clear especially for character like the genital licking which was not found earlier and also the same to be tested for other members of Felidae as well to draw the continuum.*

**Key words:** Semiochemicals, conventional VOCs, olfaction, GPCR, catnip response, *Acalypha indica*, NSAID.