F&F Research Review

A survey of recent literature in the areas of flavor, fragrance, ingredients and more.

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Recently, Masson et al. applied the chemical "fingerprinting" techniques of metabolomics to the ***identification and quality assessment of iris rhizomes***.[1] The study involved 22 commercial samples of iris rhizomes, including *Iris germanica, I. albicans* and *I. pallida* from Morocco; and *I. pallida* from both China and Italy. Compared to the "conventional analysis methods of LC-UV and LC-MS, techniques including exact mass/retention time (EMRT), UHPLC–TOF/HRMS, principal component analysis (PCA), partial least square discriminant analysis (PLS-DA), and then orthogonal partial least square-discriminant analysis (OPLS-DA), performed well."

Narula et al. recently published a patent application for ***3-methyl-cyclohexadec-6-enone***, an odorant featuring "a strong musky odor with an unexpected powdery character."[2] The material can also contribute smooth, creamy, feminine, warm and "comfortable" facets to top and middle notes in fragrance compositions, according to the authors.

A recent patent application from Jaunky et al. describes ***5,5-dimethyl-2-propyl-hexahydro-2,4a-methano-naphthalen-1-one***, which contributes amber notes with strong substantivity to fragrances.[3] In compositions, the material creates a strong amber-woody top note, according to the authors, while also boosting fruity and green notes. In the middle and base of compositions, the material can contribute a powerful woody-ambery character.

A recent patent application from Diersing et al. describes a functional fragrance composition for use in air care and other products in which a ***volatile organic compound (VOC)-free formula*** is desired.[4] The composition comprises "by weight of the perfume mixture, about 5% to about 10% of benzyl acetate; about 5% to about 35% of isononyl acetate; about 20% to about 45% dihydromyrcenol; and about 35% to about 45% linalool." The application describes the use of the composition in applications such as air diffusers, gel matrixes, skin moisturizers, body deodorants, facial and body cleansers, baby wipes, hard surface cleaners, wood polishes, automobile cleaners, household cleaners, softeners, dewrinklers, refreshers, and aerosols and sprays. According to the applicants, "In one embodiment, the functional perfume component may be present in an amount from about 75% to about 100%, by weight of said mixture, wherein said composition is substantially free of a VOC."

In a recent publication from Cordero et al., the authors explored the ***assessment of food product quality*** using two-dimensional gas chromatography with olfactometry, chemometrics and quantitative assays.[5] The authors note, "Multidimensional analytical platforms support comprehensive investigations required for flavor analysis by combining information on analytes' identities, physicochemical behaviors (volatility, polarity, partition coefficient, and solubility), concentration, and odor quality. Unlike other omics, flavor metabolomics and sensomics include the final output of the biological phenomenon (i.e., sensory perceptions) as an additional analytical dimension, which is specifically and exclusively triggered by the chemicals analyzed." Processing data and other aspects of this sort of analysis present challenges, the authors explain, requiring "appropriate strategies" to ensure the data collected is actionable.

Barretto et al. have published a paper, now available online, that highlights "the highly specific ***transfer of taste information*** between taste cells and the central nervous system."[6] Specifically, the authors uncovered the "fine selectivity in the taste preference of ganglion neurons" and established a link between taste receptor cells in the tongue and the "principal neural afferents relaying taste information to the brain."

References

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