

EDITORIAL

Flavours and Fragrances



Flavour and Fragrance (F & F) research is an exciting and multi-disciplinary activity. It has a respected and ancient history; for what is the art of cooking, if not flavour science; and we have all heard about the parfumatic excesses of the antique cultures. We can only admire all these findings as the results of empirical science: the scientific explanations are still often lacking.

I am convinced that the future of F & F research is an active and promising one with the goal of deeper understanding of the chemical senses, the senses of taste and smell, of more rational thinking, and more rational mixing, preparing of odours and tastes.

The current state of F & F research is captured in this issue. We asked experts of their respective fields to write on recent developments or a short review. The scope of this CHIMIA issue, however, is naturally limited to the number of papers and many of our esteemed colleagues do not appear in this collection.

The interaction of cultural heritage, history, hedonism, science and daily experience makes our activities in flavours and fragrances so fantastically unique, to use that awfully misused word, so challenging and so different. The F & F industry is different from the pharmaceutical industry, but it is also different from the chemical industry; it is really a *specialty* in every sense of the word.

Fragrance research started scientifically in the 19th century as an important part of natural product chemistry and remained a domain of organic chemistry *ca.* up to the 1960s. This development has been very similar for flavour research. From that point onwards research rapidly evolved into the multidisciplinary character we have today:

- organic synthetic and process chemists developing new fragrance and flavour ingredients
- physical chemists characterizing odour molecules and describing interactions of odorants between themselves and within the product matrix
- food technologists and polymer chemists developing encapsulation systems for flavours and now increasingly also for fragrances
- sensory experts evaluating hedonistic tastes and developing an objective language to describe flavours and fragrances
- cell physiologists measuring the odour recognition within olfactory and gustatory cells and at the receptor site
- biologists studying the signal transduction from receptors cells to the brain
- microbiologists optimising flavour formation during fermentation processes and investigating the biodegradation of fragrance compounds
- molecular biologists identifying and expressing olfactory and gustatory receptor genes
- psychophysicists studying how odours are perceived
- naturalists and botanists collecting new odours from nature.

The variety within F & F research is enormous and, as mentioned above, it was not possible to cover the whole field.

Though much is known today about flavours and fragrances it is still remarkable how little is known of the overall picture. The creation of perfumes and flavours even today is a very empirical process and often seen as an art. Several years of further research will be needed to crack the code of smell and taste. Once this code is known, perfumery and flavour science as well as the creation of smells and tastes will be different in many ways. My personal opinion is that part of it will remain creation, fantasy and art for a long time – hopefully.

Finally, I thank Dr. Andreas Muheim for his great help in organizing everything in connection with this F & F CHIMIA issue.

Dr. Georg Fräter

The Editorial Board of CHIMIA warmly thanks the coordinating guest editor Dr. Georg Fräter acknowledging his interesting selection of authors and topics as well as the efficient realization of the present issue on 'Flavours and Fragrances'.