

## **Abstract**

Body odour perception plays an important role in human mate choice, especially in women. It was previously proposed that women select partners whose body odour resembles that of woman's fathers. Yet, this phenomenon has only been confirmed using ethological studies based on subjective perception of body odour similarities.

Therefore, the aim of my diploma thesis was to test this hypothesis instrumentally using comprehensive GC×GC–TOFMS and subsequent multidimensional analyses of body odour chemical profiles of male partners and fathers of adult women. Body odour sampling from left and right axilla of fathers and partners of 41 women (altogether 164 samples) was performed using cotton swabs, which were then frozen and extracted into hexane. Typical human volatile substances, such as hydrocarbons, carboxylic acids, esters, alcohols, aldehydes, ketones, sterols and terpenes were detected in all examined samples. Using a newly available “tile-based” chromatographic alignment algorithm, we obtained a set of 341 compounds systematically occurring in male axillary odour. The principal component analysis was used to calculate Euclidean distances for all pairs of the studied male subjects. These estimates of “chemical distances” revealed to be significantly smaller for father-partner pairs of individual women compared to the differences between randomized father-partner pairs. Our results suggest that women really do select partners with body odour similar to that of their fathers.

## **Keywords**

Axillary odour; human volatiles; partner choice; GC×GC–TOFMS; comprehensive two-dimensional gas chromatography; principal component analysis