

ABSTRACT

There are traces of makeup such as lipsticks, eyeliners, and perfumes left behind on items, such as clothes, cups, glasses, and cigarette butts, as evidence of daily activities and crime places. They are also often shared between offenders and the victims of the crime. Such trace evidence is often ignored; however, they can help in building criminal profiles if given consideration. Examination and detection of these trace evidence are not commonly utilized in forensic casework, however, as a source of trace evidence, the examination can offer useful advice in the investigation. There are no such analytical techniques that are not only effective but also affordable (Raman spectroscopy is expensive), hence, the GC-MS technique, which is used to categorize the volatile components of a sample, is employed in this study, to isolate, classify, and evaluate perfumes as trace evidence and to examine their transference, as well as the dangerous chemical ingredients. The research would also examine the effects of scent as a component of aging and as a component of touch time. Methanol extraction was used to recover perfumes from fabric evidences and GC-MS analysis was performed. During the perfume aging analysis, it was observed that the number of ingredients/components decreased over time due to their volatile nature. Whereas the VOC's were detectable, during the transfer analysis. Moreover, An average of 14 hidden chemicals that were not identified on a label in the perfume substance was evaluated. These included chemical compounds that have not been tested for protection in personal-patient care compounds and are associated with hormone disturbance and allergic responses.

Keywords: Forensics, GC-MS, Crime scene investigation, perfume chemistry, clothing, trace evidence