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An Alternative Approach To Detect Cancer Using Cerumen

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An Alternative Approach to Cancer Detection Using Cerumen

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ABSTRACT

Every year, millions of people die due to cancer. Early diagnosis is the best prevention against oncological diseases; however, conventional methods present challenges that make them unavailable to people who need them. Here, we present an alternative approach to detecting cancer using cerumen that overcomes the problems of conventional methods and can be highly accurate in cancer detection.

INTRODUCTION

- **In** 2020, it was estimated that almost 10 million cancer deaths have occurred worldwide (Sung, et al., 2021);
- **The** best prevention against cancer is its identification at the early stages (Wardle et al., 2015);
- **However**, conventional cancer detection methods are unavailable for most of the population (Frangioni, 2008);
- **Thus**, there is a global urgency in the development of new affordable cancer test;
- **Herein**, we present a new approach using cerumen that can be used as a precise method to identify cancer in an easy, accurate, non-invasive, and cheap manner.

METHOD

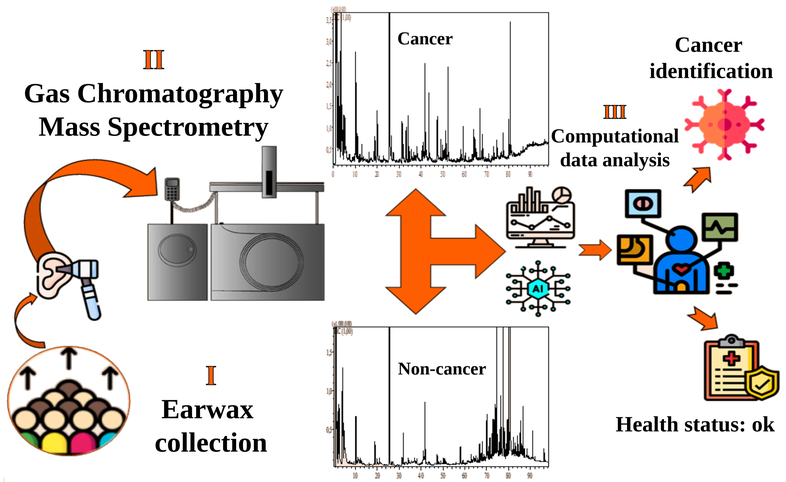

Figure 1. The experimental setup of the proposed method is divided into three main steps: **I** Biofluid collection, **II** Analytical procedures, and **III** Data analysis. Icons are available from: www.flaticon.com.

RESULTS

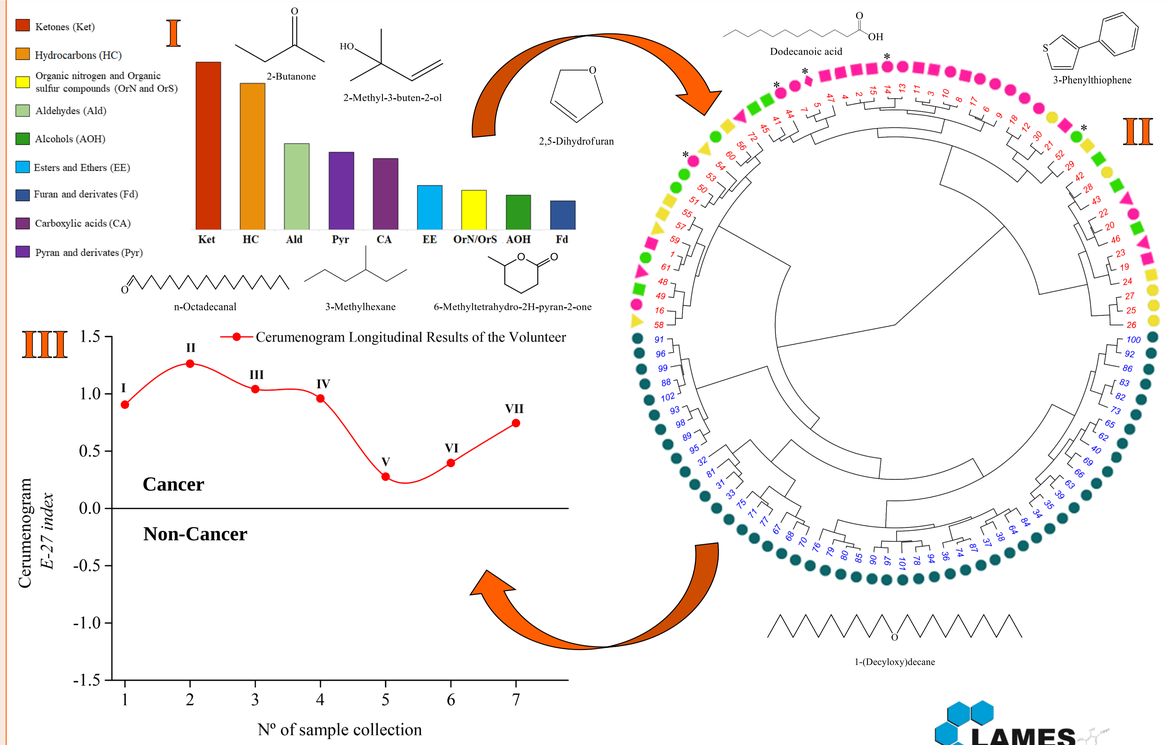

Figure 2. Scheme summarizes the organic class I (and some examples of the cerumen metabolites) detected in the cancer database II (Barbosa et al., 2019) and the method applied to follow up a cancer patient volunteer III.

PERSPECTIVES

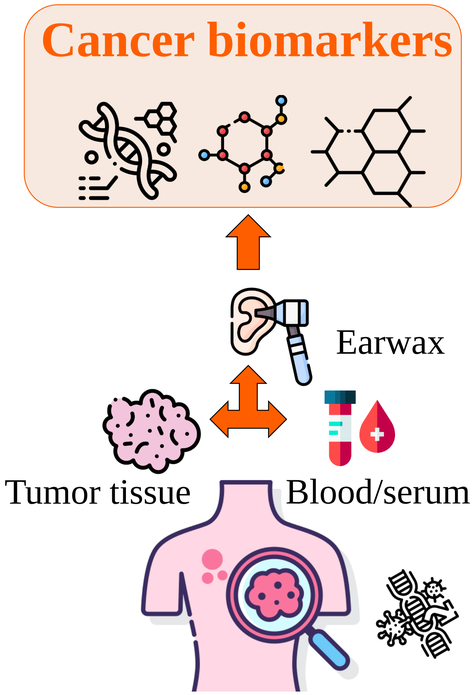

Figure 3. Cancer metabolites correlation of the tumor tissue, blood/serum, and earwax. Icons are available from: www.flaticon.com.

DISCUSSION

This analysis, called Cerumenogram, selected 27 volatile organic metabolites (VOMs) with high discrimination power of cancer and non-cancer patients (Barbosa et al., 2019). The biofluid used here presents an easy and painless sample collection (do it yourself) and cheap analysis compared to conventional methods (Shokry et al., 2017). Last, the Cerumenogram can be applied as a routine procedure as a prevention test or as a tool to monitor and follow-up cancer treatment.

CONCLUSIONS

- ✓ Cerumen presents biomarkers that can lead to cancer detection;
- ✓ It can be handy to apply in a patient follow-up during cancer treatment;
- ✓ The analysis is cheaper than conventional methods.

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