

Halitosis Research

1. C J L Silwood^{*}, M Grootveld, D P Naughton, D Y D Samarawickrama and E Lynch
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MANAGEMENT OF ORAL MALODOUR WITH A NEW ORAL SPRAY.
Journal of Dental Research 75, British Society for Dental Research Annual Meeting, 1181, 415, 1996.

This pilot study used an industrial sulphide monitor¹ in the analysis of oral malodour to assess a new oral spray². The monitor measures a peak reading of volatile sulphur compounds (VSC) in parts per billion (ppb) based on a build-up during 2 minutes in which the mouth is closed, as well as a 'steady-state' value indicative of ongoing sulphide production. The method has been applied to 4 patients who complained of bad breath and 6 patients who did not complain of bad breath to see if VSC levels dropped following the use of an oral spray². Readings were taken before and after spraying, three being recorded in each case as to obtain an average, the period of time between the two sets of readings being fifteen minutes. In the case of the four who had clinical halitosis, a detectable decrease in both peak (mean values reduced from 189 to 122 ppb), and 'steady-state' values were observed, whilst the other six subjects showed no significant change. The latter group's peak readings before spraying occurred in the region (50-125 ppb) where no discernible change might be expected.

The readings for the four patients with halitosis showing sensitivity to the Janina product suggested that a convenient minimum index to detect change for oral malodour with this experimental set-up might be around 160 ppb.

¹Halimeter, Abiodent Inc, USA. ²Janina Ultrawhite Oral Spray, Janina International, UK.

N.B. Since this study was carried out Janina Ultrawhite Oral Spray has changed its name to Janina Liquid Toothpaste Spray.

2. N D Johnson^{1*}, E Lynch¹, A Sheerin², M Atherton², D Naughton² and M Grootveld²
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MULTICOMPONENT INVESTIGATIONS OF THE OXIDISING ACTIONS
OF A CHLORITE-CONTAINING ORAL RINSE.
Journal of Dental Research 74: 879, 462, 1995.

A multicomponent evaluation of the oxidative consumption of salivary biomolecules by a commercially-available oral rinse¹ preparation containing chlorite anion [ClO_2^- , 2% (W/V)] has been investigated using high resolution ¹H NMR spectroscopy. Unstimulated human saliva samples were obtained from twenty patients. Immediately after collection all samples were centrifuged, supernatant removed, and an equivalent volume of oral rinse¹ added. The mixture

was incubated at a temperature of 37°C for a 30 minute period prior to ¹H NMR analysis. Aqueous solutions containing 1.00 X 10⁻² mol.dm⁻³ sodium pyruvate, L-cysteine or L-methionine were prepared in 4.00 X 10⁻² mol.dm⁻³ phosphate buffer (pH 7.00). Aliquots of these solutions were then treated with an equivalent volume of oral rinse¹. The results obtained demonstrated that ClO₂⁻ present in this preparation effected the oxidative decarboxylation of salivary pyruvate (to acetate and CO₂). Experiments conducted on chemicals model systems confirmed the oxidative decarboxylation of pyruvate by this oral rinse¹, and also demonstrated that the amino acids cysteine and methionine (precursors to volatile sulphur compounds responsible for oral malodour) were oxidatively consumed.

High resolution ¹H NMR spectroscopy is a technique of much utility concerning multicomponent evaluations of the oxidising actions of therapeutically-active agents present in oral rinse preparations towards salivary biomolecules.

¹Ultrawhite Oral Spray, Janina International, UK

N.B. Since this study was carried out Ultrawhite Oral Spray has changed its name to Janina Liquid Toothpaste Spray.