L-CYSTEINE (ACETIUM) LOZENGE EFFECTIVELY ELIMINATES CARCINOGENIC ACETALDEHYDE FROM SALIVA

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Introduction: Acetaldehyde that is present in alcoholic beverages or formed endogenously from ethanol is a Group 1 human carcinogen. One daily drink, or 10 g of ethanol, significantly increases the risk for oral cancer. A single sip of an alcoholic beverage causes exposure to carcinogenic concentrations of acetaldehyde in the oral cavity. In the presence of L-cysteine acetaldehyde is converted to inactive 2-methyl-1,3-thiazolidine-4-carboxylic acid (MTCA). L-cysteine lozenge effectively eliminates acetaldehyde from saliva during smoking.

Aims: To assess the effect of L-cysteine lozenges on salivary ethanol, acetaldehyde, L-cysteine and MTCA concentrations after sipping of strong alcoholic beverages containing varying levels of acetaldehyde.

Methods: Trial 1: Subjects took one Acetium lozenge (3mg of L-cysteine) 5 min before rinsing their mouths with 5 ml of water, vodka or grappa for 5 seconds. Trial 2: Subjects took one lozenge 5 min before and another immediately after alcohol sipping. Saliva samples were collected for 32 minutes.

Results: Trial 1: One L-cysteine lozenge resulted in a peak salivary L-cysteine concentration of 596 ± 183 µM at 2 min and L-cysteine remained present in saliva for 8 minutes. The peak of salivary MTCA at 2 min was 129 ± 56 µM and MTCA remained in saliva for up to 16 minutes. Trial 2: Acetaldehyde exposure in the oral cavity was decreased by 87.5 % (p = 0.0012) after sipping of grappa containing 5344 µM of acetaldehyde. Conclusions: L-cysteine (Acetium) lozenges effectively eliminate ethanol derived carcinogenic acetaldehyde from saliva by converting it to inactive and unabsorbable MTCA.