

Cherry-flavored e-cigs may deliver higher levels of benzaldehyde than other flavors

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Cherry flavoured e-cigarettes may expose vapers to significantly higher levels of the respiratory irritant benzaldehyde than other flavours, suggests a laboratory study published online in *Thorax*.

The doses inhaled with 30 puffs were often higher than those breathed in from a conventional cigarette, the findings show.

Many [e-cigarettes](#) contain flavourings, most of which are recognised as safe when used in food products, but concerns have been raised about their potential harm when inhaled, particularly over the long term.

Benzaldehyde is routinely used in foodstuffs and cosmetics, and is a key ingredient in 'natural' fruit flavourings. But it has been shown to irritate the airways in animal and workplace exposure studies.

The researchers therefore wanted to quantify the levels of benzaldehyde that a vaper might breathe in from fruit flavoured e-cigarettes, purchased online.

The 145 e-cigarettes were grouped according to their labelling: berry/tropical fruit (40); tobacco (37); alcohol (15); chocolate/sweet (11); coffee/tea (11); mint/menthol (10); cherry (10); and 'other' (11).

Aerosol vapour was generated using an automatic smoking simulator, with 30 puffs taken from each e-cigarette in two series of 15 puffs with a 5 minute interval in between, and the quantities of benzaldehyde

measured.

The researchers calculated a daily inhaled dose of benzaldehyde for each product, assuming that an experienced vaper puffs on an e-cigarette 163 times a day

The inhaled dose from 30 puffs was compared with that from a conventional cigarette and with a hypothetical maximum permissible dose that healthy workers might be exposed to over the course of an 8 hour shift.

Benzaldehyde was detected in 108 out of 145 e-cigarettes (74%), with the highest levels detected in the cherry flavoured products. Yields of the chemical were around 43 times higher than in these products.

The doses of benzaldehyde inhaled from 30 puffs from flavoured e-cigarettes were often higher than those inhaled from a conventional cigarette.

The estimated daily inhaled dose from cherry flavoured e-cigarettes was 70.3 ug, which is more than 1000 times lower than the maximum permissible workplace exposure level.

The researchers emphasise that their study used a simulator, so may not reflect actual inhalation during vaping, but suggest that it still points to a potential risk associated with cherry flavoured e-cigarettes.

"Users of cherry flavoured products may inhale significantly higher doses of benzaldehyde compared with users of other flavoured products," they write.

"Although e-cigarettes may be a promising harm reduction tool for smokers, the findings indicate that using these [products](#) could result in

repeated inhalation of benzaldehyde, with long term users risking regular exposure to the substance," they add.

More information: Cherry flavoured electronic cigarettes expose users to the inhalation irritant, benzaldehyde, [DOI: 10.1136/thoraxjnl-2015-207895](https://doi.org/10.1136/thoraxjnl-2015-207895)

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