

Emissions from dry chamomile vaping

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CONCLUSIONS

- These findings highlight:
- the importance of temperature control and method choice in vaporization processes
 - vaping is not as innocent as people have been led to believe
 - the detection of the above compounds in aerosol reveals the presence of combustion.
- The results show that further research on such products is considered necessary.

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INTRODUCTION

Herb vaping has gained popularity as a healthier and more efficient alternative to smoking. Companies promote it as a way to reduce exposure to harmful toxins and carcinogens from cigarette combustion, claiming it extracts active compounds more efficiently. However, there is little research to support these claims. In contrast, Zervas et al. (1) have shown significant emissions of particulate matter (PM) from herbs used in heating/vaping devices. Other tobacco products emits various pollutants (2,3,4,5)

AIM

Our purpose is to study total particulate mass (TPM) and carbon monoxide (CO) in emissions generated from a vaping device filled with dry chamomile

METHODS AND MATERIALS

The emissions were generated using a smoking machine. TPM were measured gravimetrically after collected on Cambridge filter pads. CO were collected in bags and were measured using a non-dispersive infrared analyzer. The device was set at 215oC and 225oC. Two regimes were applied at each temperature: 35ml/60s (International Standard Organization ISO-like) and 55ml/30s (Health Canada Intense CAN-like) with a puff duration of 2s and 5s.

RESULTS-TPM

Increasing the temperature from 215°C to 225°C shows a slight increase in the TPM for both ISO and CAN methods. The change in puff duration from 2 to 5 sec results in a decrease in total particulate matter for both methods at 215°C. At 225°C, a longer puff duration results in higher particulate levels in the CAN method, while the ISO method shows little change. The CAN method generally records higher particulate matter measurements compared to the ISO method across different conditions.

RESULTS-CO

During chamomile vaporization, there is a clear increase in CO production when the temperature is raised from 215°C to 225°C for both ISO and CAN methods. At 215°C, increasing puff duration from 2 to 5 sec slightly increases CO production in both methods. At 225°C, puff duration doesn't seem to affect CO production; levels remain constant for both 2 sec and 5 sec puffs. The CAN method consistently shows higher CO measurements compared to the ISO method across all conditions.

REFERENCES

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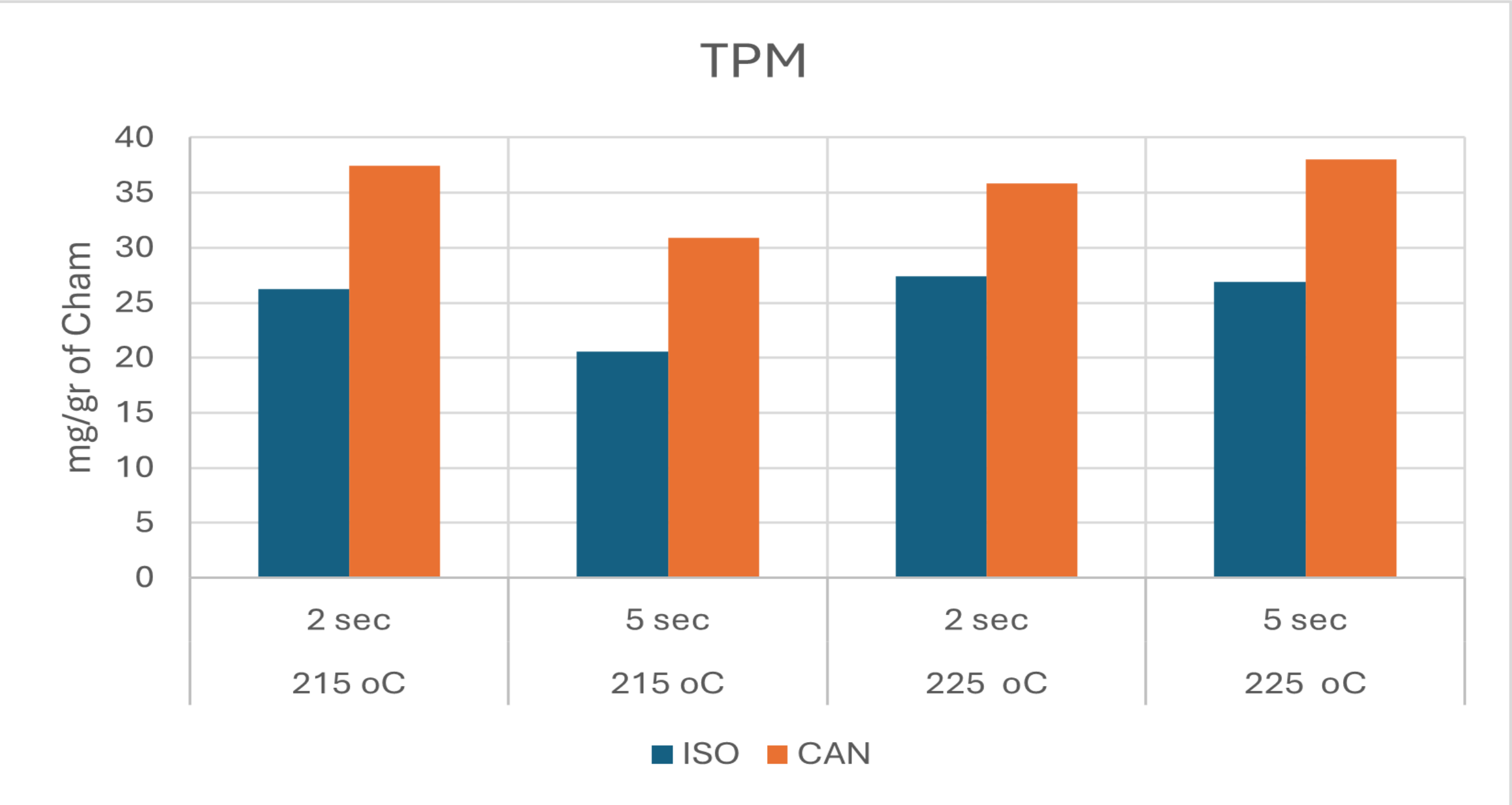


Chart 1. TPM in aerosol emissions from chamomile vaping.

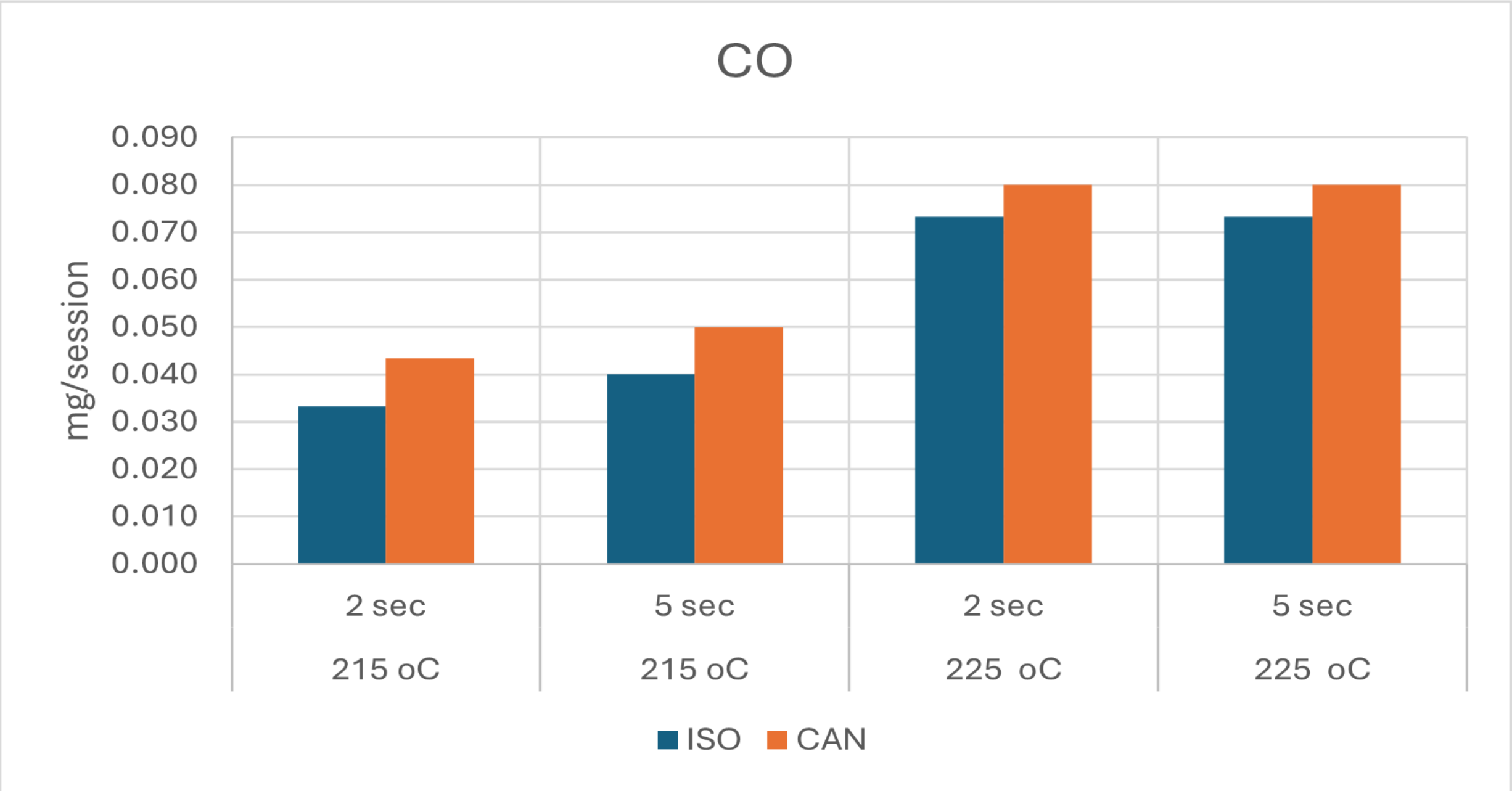


Chart 2. CO in aerosol emissions from chamomile vaping.