In this study, it was observed there is a correlation between Comprehensive search for the best subsets, of up to 6 explanatory variables, for predicting the emissions obtained under ISO smoking regime for a given analyte.

Deal with the trade-off between the goodness of fit and the complexity of the model using Bayesian Criteria [5] (BIC).

Active burnt length under ISO & Intense; Active burnt weight under ISO & Intense; k parameter and Ratio active butt length; Diameter; Filter length; Filter Ventilation; Paper grammage; Paper permeability. Consequently, the application of two smoking regimes is not 98% 91% 93%

Otherwise, the correlation between analyte emissions for a given 93% 24% 5%

RESULTS

The circular mapping shows the ISO emissions according to their group [7] and the R2-squared (R²) of the selected models. The R-squared values are divided in 3 groups, 0.90 – 0.95; 0.95 – 0.99, corresponding to the 3 colored rings. The external ring refers to levels lower than the limit of quantification (LOQ).

Models:
- 39% of ISO emissions (36 of the 93 HPHC) were not computed for prediction due to their emissions lower than the LOQ or not analysed.
- 61% of ISO emissions (57 of the 93 HPHC) were predicted for prediction.

Prediction:
- 96% of ISO emissions (56 out of 57) are predicted with R² ≥ 0.90 Only vinyl acetate is predicted with R² = 0.75 (not shown in the circular mapping).
- 91% of ISO emissions (52 out of 57) are predicted with R² ≥ 0.95.

Variables:
- 93% of ISO emissions can be predicted with 1 variable with R² ≥ 0.70.
- 93% of ISO emissions can be predicted with 2 variables with R² ≥ 0.80.

Contribution groups:
- 70% is the contribution of Intense emissions in the models.
- 17% is the contribution of Cigarette design parameters.
- 8% is the contribution of Burning parameters.
- 5% is the contribution of Tobacco constituents.

Contribution variables:
- 16% of selected models (9 out of 57) require Intense emissions to predict the corresponding ISO emissions.
- 24% of analytes (25 out of 105) are never selected as prediction variables in the computed models.

CONCLUSIONS

1. In this study, it was observed there is a correlation between ISO and Intense emissions. Conclusions drawn on selected models show a redundancy of information.

2. Consequently, the application of two smoking regimes is not useful.

3. Otherwise, the correlation between analyte emissions for a given smoking regime was not analysed in this study. This investigation is described by Tallet et al. Relationships between HPHCs in cigarette smoke, 69 TSRC, 22nd of September 2015.

REFERENCES


