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## Biogenic VOC profiles emissions of Rapeseed leaf litter and their SOA formation potential

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The annual global leaf litter production has been estimated between 75 and 135 Pg DM yr<sup>-1</sup> contributing to the 10% of the global annual emission of acetone and methanol. Besides their impact on atmospheric chemistry, little attention has been drawn to leaves litter and their contribution to the bVOC emissions and their SOA formation potential.

The purpose of this study is to analyze the bVOC (biogenic volatile organic compounds) emissions from rapeseed leaves litter and their contribution to SOA (secondary organic aerosol) formation under three different conditions: (I) the presence of a UV light irradiation (II) the presence of ozone, and (III) a combination of the previous two. To reach this goal, bVOC and aerosol numbers have been measured for 6 days in a controlled atmospheric chamber containing leaf litter samples.

Results showed that VOC emission profiles were affected by the UV light irradiation, which increased the summed VOC emissions compared to the experiment with O<sub>3</sub>. Furthermore, the diversity of the VOC emitted from the rapeseed litter increased with the UV light irradiation. The highlight of this study is that the SOA formation rate observed when leaf litter was exposed to both UV light and O<sub>3</sub> indicates a potentially large source of atmospheric pollution at the local scale. To our knowledge, this study investigates for the first time the effect of UV irradiation and O<sub>3</sub> exposure on both VOC emissions and SOA formation for leaf litter samples. A detailed discussion about the processes behind the biological production of the most important VOC is proposed.