

Study of pyrolytic gases produced by different crack pipe designs

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Background: Makeshift crack pipes cause harm, and benefits to the organised supply of pipes are clear. There are pyrolysis products produced when cocaine is heated, with biology largely unknown. This study aimed to identify which pyrolysis products were produced by different pipes, including those supplied to the SiPP study. It is important to understand the gasses inhaled by users of crack cocaine so that correct and credible information can be provided alongside pipes.

Methods: Seven different types of pipe/gauze were tested: Short pipe / steel gauze; long pipe / steel gauze; Long pipe / brass gauze; shop bought glass pipe / wire mesh; Steel cannabis pipe / wire mesh; adapted asthma inhaler; Pepsi can. Pipes were tested with both a jet and click lighter.

Each experiment ran until the 30 mg 'dose' was consumed. The smoke generated was condensed in two glass traps at -78 °C and then analysed using LC-MS.

Results: We found pyrolysis products from all pipe designs, but found using the 'home-made' inhaler and aluminium can pipes, along with the glass pipe, compared with the steel cannabis pipe and those supplied by Exchange Supplies to the SiPP study



Conclusions: This study shows that there are different pyrolysis products generated when pure cocaine freebase is 'smoked' using different crack pipes via a smoking simulator.

It is likely that combustion of the drugs happens more in home-made pipes, and this accounts for the reduced products of pyrolysis found with these devices. Future research should focus on the specific compounds formed in home-made pipes, and the biological activities of the compounds produced when cocaine freebase is smoked.