E-cigs contain a million times more cancer-causing chemicals than polluted air – Hong Kong study

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The research, carried out by the Baptist University, also found a type of flame retardant in the devices that affected the reproductive system and could also lead to cancer.

Thirteen random electronic cigarettes available on the Chinese market were analyzed and returned worrying results: the level of polycyclic aromatic hydrocarbons (PAHs), a by-product of burning petroleum also found in polluted roadside air, ranged from 2.9 to 504.5 nanograms per milliliter.

That's *"at least one million times more than roadside air in Hong Kong,"* according to Dr Chung Shan-shan, assistant professor in the Baptist University's biology department.

Another substance of concern found in abundance is Polybrominated diphenyl ethers (PBDEs). These are flame retardants that are widely used in the manufacturing of furniture and electronic products.

With an average 5 nanograms per milliliter in a conventional cigarette, the number of PBDEs in e-cigarettes range from 1.7 to 1,490 nanograms per milliliter.

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PBDEs are added to e-cigarettes to reduce the risk of burning in the devices' plastic combustible components. According to Dr Chung Shan-shan, inhalation of PBDEs has been associated with thyroid hormone disruption and reduction of fertility; it affects fetal development and can cause cancers.

"Even though we don't know the exact number of e-cigarettes one should take, not to mention that many of the carcinogenic effects are cumulative, I don't think there is a safe margin," Chung said.

At least 16 countries have imposed a total ban on e-cigarettes, including Singapore, Thailand and Brazil, while the World Health Organization (WHO) admits that there is insufficient information so far on health implications caused by e-cigarettes.

“Some research programmes are already under way but given that e-cigarettes have been popular in the last four or five years, research has barely started and it’s early days yet. It would take about five or 10 years before we have evidence that could change the current picture.” Armando Peruga, Programme Manager of WHO's Tobacco Free Initiative, said in a 2014 interview.