

**Supplementary  
Submission  
No 38b**

**INQUIRY INTO IMPACT OF THE REGULATORY  
FRAMEWORK FOR CANNABIS IN NEW SOUTH WALES**

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This submission as my attempt to explain why NSW cannabis drug tests give inaccurate results.

'Testing for cannabis' use does not usually mean testing for the presence of cannabis in a person's body. The tests usually attempt to detect cannabinoid metabolites.

It is not clear what may trigger a human body to trigger the production of cannabinoid metabolites. The human body is a complex biological system. It does not follow simple mathematical relations of basic chemistry. Rate of excretion of a metabolite is an important consideration that varies widely with between individuals. Cannabinoid metabolite levels are not directly related to the amount of cannabinoids that are attached to the relevant receptors in the brain. It therefore follows that measurement of cannabinoid metabolites are not a reflection of driver impairment.

I am not suggesting that direct testing for the cannabis is a practical alternative. Anecdotal evidence indicates that tests for the presence of a specific drug can be so sensitive, that sharing a public bathroom with a drug can yield a positive result. A great deal of study would be required to determine what might be an acceptable alternative to Cannabinoid metabolite testing.

Cannabis is a herb. It is not like other drugs that are manufactured and have a specific chemical formula. The chemistry of cannabis and other cannabinoid producing plants varies with plant variety, plant maturity, and growing conditions.

Science of biological chemicals is different to the study of laboratory chemistry. Experimental investigation of biological system yields a 'bell curve' of results. That bell curve has outlying results that may appear incorrect, but are part of the normal range of results in a biological system. An outlying result means that there is a possibility of a high cannabinoid metabolite result, or a very low result, depending on the individual's metabolism, not their level of cannabinoid exposure. An accurate correlation between cannabis usage and cannabinoid metabolites is a possibility, not a certainty.

There appears to be no thorough study of which plant cannabinoids can be metabolised by the human body to produce a positive cannabinoid metabolite test result. The paper "An overview on plant cannabinoids endorsed with cardiovascular effects" by Marrilisa Pia Dimmito et al lists 22 plants that contain cannabinoids. Other authors list different plants that contain cannabinoids. NSW driver cannabis tests may produce a positive result from ingesting an unknown number of those plants.

To determine the accuracy of NSW police driver cannabis testing a number of investigations need to be undertaken. The contracts for supply of those tests needs to be examined to determine what tests are being used, and what is the standard of tests being supplied to NSW police. Once the information is available those test kits need to be duplicated or sufficient tests kits be provided by the police for research. A list of plants with cannabinoid content needs to be compiled. Known weeds should be included in this list because large scale agriculture sometimes results in weeds being accidentally harvested with a commercial crop. A population of volunteers to ingest the plants and provide sputum, urine and/or blood for testing is required. An appropriately funded laboratory and professional staff is also required. Once all of that has been assembled then an investigation of the accuracy of cannabis drug screening can be undertaken. Until that complete study of the accuracy of those tests is undertaken we are only guessing at a correlation between cannabis ingestion and cannabinoid metabolite levels.

There is various laboratory tests of bodily fluids for 'cannabis'. Measurement of drug rehabilitation participants is a variation on cannabinoid metabolite testing. 'Forensic' laboratory

testing of human bodily fluids often uses gas-chromatograph-mass-spectrometer equipment. Analysis of bodily fluids using a gas-chromatograph has the same inherent inaccuracies as cannabinoid metabolite testing. It also has the additional inaccuracies of the gas-chromatograph equipment. The gas-chromatograph works by using hydrogen to blow the bodily fluid sample through a thin coated tube. The coating on the tube creates drag on the fluid's chemicals. The chemicals separate and emerge from the tube over a period of time. The amount of time a particular chemical takes to be blown through the tube is used to guess at what the chemical might be. The gas-chromatograph-mass-spectrometer then measures what atoms the chemical is made of to reduce the number of guesses.

The accuracy of a gas-chromatograph is only as good as the information used to calibrate it. Until the results obtained by this methods is subject to the same rigorous research as what I have outlined for cannabinoid metabolite testing, the accuracy of this testing method is also not known.

I hope this submission is of assistance to the enquiry.