

StatSure oral fluid collection system

Relevant literature

A major comparative study conducted in Finland in 2008 tested and compared nine oral fluid collection systems available on the market [1]. This work studied the volume of oral fluid collected, drug recovery for eight drugs, ethanol recovery and the stability of the analytes. Other studies focused on cannabinoid stability [2] and the changes in the concentration of cocaine and BZE in oral fluid when taking samples with the StatSure Saliva Sampler [3].

Sample volume

According to the data obtained by the Finnish study by Langel et al. [1], an average of 1.18 ml oral fluid is obtained in vivo with the StatSure Saliva Sampler. The relative standard deviation was 1.9%. When taking samples from six volunteers, an average volume of 0.95 ml was obtained with a relative standard deviation of 12%.

Drug recovery rates

In the same study, the StatSure was the only sampling system with a recovery rate of over 80% for all tested substances. At 85.4%, it achieved the highest average recovery rate for THC, an analyte that is commonly considered to be problematic. The cocaine recovery rate was recorded at 85.6%. Ellefsen et al. [3] described the StatSure on the whole as an efficient means of monitoring the concentrations of cocaine and its metabolites. Langel et al. [1] recorded average recovery rates of 88.7% for amphetamine, 86.3% for MDMA, 88.5% for morphine, 81.3% for codeine, 87.4% for diazepam, 91.1% for alprazolam and 80.5% for ethanol.

Drug stability

Langel et al. determined the stability after 14 days at -18°C to be at least 75% of the recovery rate for all drugs tested. For THC, the StatSure outperformed all other tested systems with a rate of 95%. After 28 days of storage, the recovery rate lies between 69% for amphetamine and alprazolam and 91% for morphine [1]. Anizan et al. [2] confirm that the StatSure also offers good stability for cannabinoids in oral fluid, but with some limitations for CBN, which is relatively unstable. Specifically, the authors state that high concentration accuracy is ensured if the samples are analyzed within four weeks of storage at 4°C or within 24 weeks of storage at -20°C.

Securetec Detektions-Systeme AG
Lilienthalstrasse 7
85579 Neubiberg, Germany

Phone: +49 89 203080-1651
Fax: +49 89 203080-1652

Website: www.securetec.net
E-mail: info@securetec.net

Legal form:
Stock corporation
HRB 136885 (RG Munich)

VAT ID: DE 173 817 641
Tax office: Munich Tax and
Revenue Office
for Corporate Bodies

Board of Directors:
Verena Zimmermann
Stefan Masur

Chair of the Supervisory Board:
Dr Oliver Wulff

Bank details:
Sparkasse Rosenheim-Bad Aibling
IBAN: DE91 7115 0000 0000 1973 19
BIC: BYLADEM1ROS

Conclusion

The StatSure absorbs 1 ml oral fluid with high precision. The recovery rate is very high for all drugs (minimum 80%) as well as for the critical parameter THC. The system enables high storage stability, although cannabinoids should not be stored for more than four weeks at 4°C or six months at - 20°C.

Literature

1. Langel, K., et al., Drug testing in oral fluid-evaluation of sample collection devices. J Anal Tox, 2008. 32(6): p. 393-401.
2. Anizan, S., et al., Impact of oral fluid collection device on cannabinoid stability following smoked cannabis. Drug Test Anal, 2015. 7(2): p. 114-20.
3. Ellefsen, K.N., et al., Oral fluid cocaine and benzoylecgonine concentrations following controlled intravenous cocaine administration. Forensic Science International, 2016. 260: p. 95-101.

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Fax: +49 89 203080-1652

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