

NARCOTIC AND PSYCHOTROPIC SUBSTANCES IN WATER

ALS laboratory has developed, validated and accredited a method for the determination of residues of opiates, narcotics and psychotropic substances and their metabolites at trace concentrations (1 - 20 ng / L). The method uses liquid chromatography with mass detection (UHPLC-MS / MS). Most well-known representatives of illegal psychotropic substances (pervitin, cocain, heroin, ecstasy, LSD, THC) and representatives of opiates under medical prescription, but currently abused (morphine, buprenorphine, tramadol) are determined.

The use of narcotics and psychotropic substances and opiates is a long-discussed topic. The increasing number of users and the decreasing age of experimenting people is the most alarming.

In recent years, the question of the fate of residues of these substances in the environment has come to the forefront of the interest of experts and public. The greatest attention is paid to the occurrence of these substances in surface water and groundwater, which are sources of drinking water for the entire population.

As with pharmaceuticals, wastewater treatment processes are not efficient enough to remove residues of narcotics and psychotropic substances and their metabolites. These, together with the treated wastewater, then end into the environment, where they can have a negative effect on non-target organisms and can also enter drinking water. Their subsequent effects on human health are then difficult to estimate.



Table 1 – Narcotic and psychotropic substances

Substance	Limit in ng/L	Group
Amphetamin	1	Stimulants
Metamfetamin	1	Stimulants
MDMA (ecstasy - methylenedioxyamphetamin)	1	Stimulants
MBDB (N-methyl-1-(1,3-benzodioxol-5-yl)-2-butanamin)	1	Stimulants
MDA (3,4-methylenedioxyamphetamin)	1	Stimulants
MDEA (3,4-methylenedioxyamphetamin)	1	Stimulants
Cocaine	2.5	Stimulants
Benzoylgonin	1	Metabolite of cocaine
Cocaethylene	1	Metabolite of cocaine
Heroin	1	Narcotic analgesics
LSD	1	Hallucinogens
LSD hydroxy	1	Metabolite of LSD
THC (delta-9-tetrahydrocannabinol)	10	Cannabinoids
THCA-A (delta9-tetrahydrocannabinol-2-carboxylic acid)	10	Metabolite of THC
THC-COOH (11-nor-9-carboxy-THC)	10	metabolite of THC
THC glucuronide	10	metabolite of THC
THC hydroxy	20	Metabolite of THC

in bold are mentioned the main narcotic and psychotropic substances

Table 2 – Psychotropic medicines and opiates

Substances	Limit in ng/L	Group
Alprazolam	1	Benzodiazepines
Bromazepam	2	Benzodiazepines
Buprenorphine	2	Analgesics
Buprenorphine glucuronide	5	Metabolite of buprenorphine
Diazepam	1	Benzodiazepines
Ephedrine	1	antitussives
Fentanyl	1	Analgesics
Chlordiazepoxide	1	Benzodiazepines
Ketamine	1	Anesthetic
Clonazepam	1	Benzodiazepines
Codeine	2.5	Analgesics
Methadone	1	Analgesics
EDDP	1	Metabolite of methadone
Midazolam	1	Benzodiazepines
Morphine	1	Analgesics
Hydromorphone	1	Analgesics
6-acetylmorphine (6-MAM)	1	Metabolite of morphine
Norbuprenorphine	2.5	Metabolite of buprenorphine
Norbuprenorphine glucuronide	5	Metabolite of buprenorphine
Oxazepam	1	Benzodiazepines
Tetrazepam	1	Benzodiazepines
Tebain	1	Analgesics
Tramadol	1	Analgesics
Zolpidem	1	Hypnotics

in bold are mentioned the main narcotic and psychotropic substances

If you are interested in ALS services in the field of determination of narcotic and psychotropic substances in water or other analytical services, do not hesitate to contact us.