



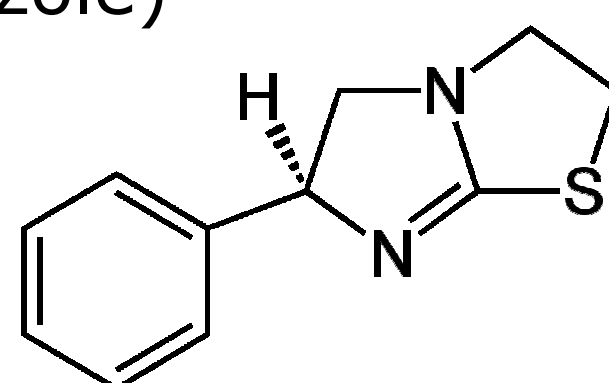
COWS ON COKE



Levamisole: A livestock de-wormer in cocaine

Introduction

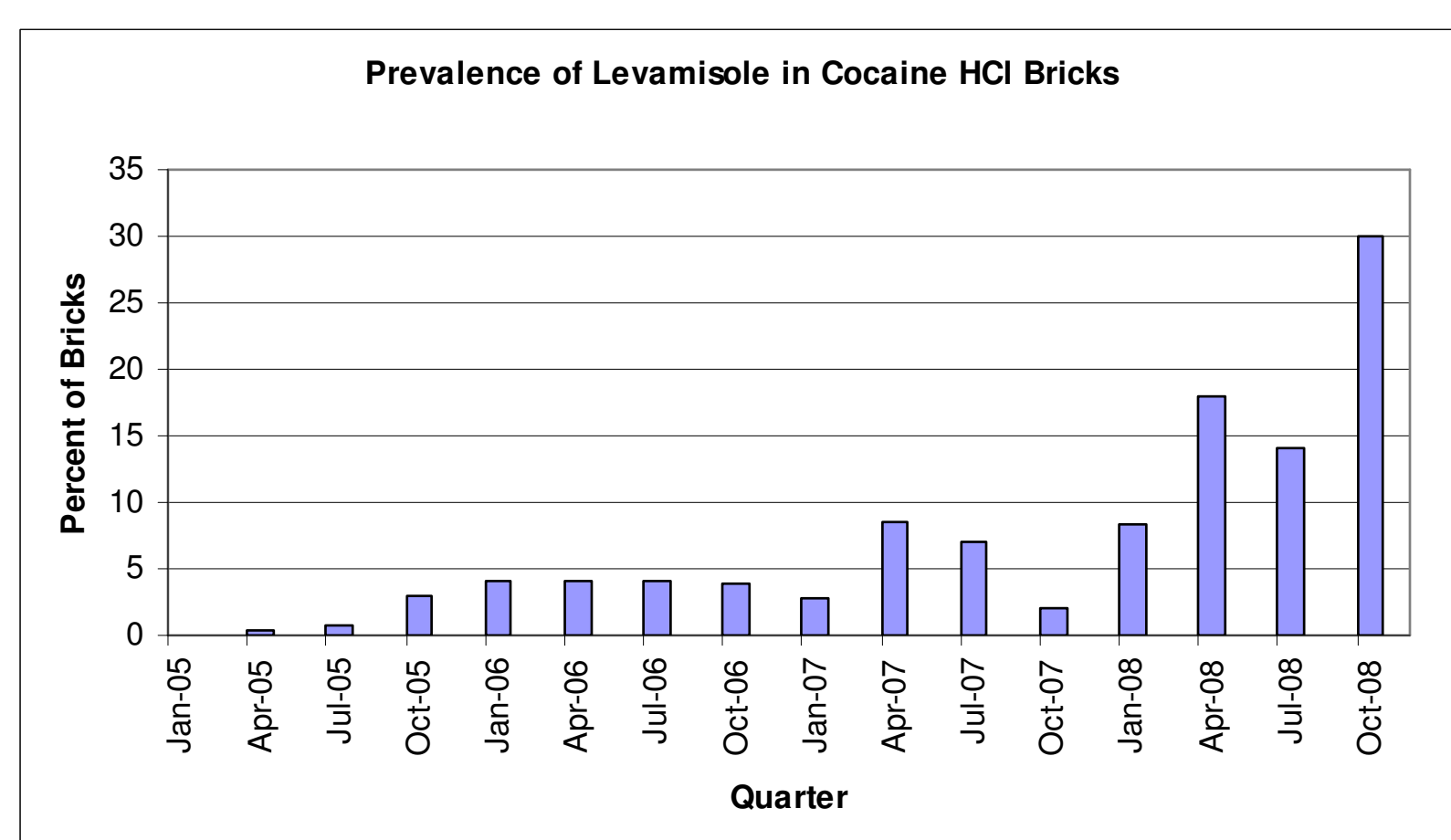
Levamisole ((S)-6-phenyl-2,3,5,6-tetrahydroimidazo[2,1-b][1,3]thiazole) has gained attention overseas in recent years as a cutting agent for illicit cocaine. Levamisole, or (I)-Tetramisole, is a drug used in the treatment of colon cancer, but primarily it has a veterinary use as an anthelmintic, to control parasites in livestock.



Recent DDL specimens (January 2009 onwards) were examined in order to obtain comparison levamisole data from a range of living subjects. These were mostly cocaine-positive "drug/drive" cases, as well as a number of fatal accident, sexual assault and murder cases. Interestingly, levamisole appears to be more common in samples from living subjects, but generally at lower concentrations than the coronial samples.

Levamisole around the world

Recently the US Drug Enforcement Administration (DEA) reported a significant increase in the prevalence of the drug. In late 2008 the DEA found as much as 30% of illicit cocaine hydrochloride exhibits contained levamisole, and by mid-2009 this figure had risen to 70%. This trend has been seen in other countries around the world and is reflected in illicit cocaine exhibits received by Australian laboratories.



Levamisole in seized cocaine bricks. Data from the US DEA (ref. 11)

Reports of serious illness and death in relation to levamisole-laced cocaine were seen last year in Canada and the USA, and the drug is receiving significant attention worldwide.

Levamisole Dosage Confirmed to Play Part in DJ AM's Death
September 29, 2009 7:00 pm

Daily Telegraph
July 12th 2009

Drugs laced with poison

Cocaine Laced With Cow-Worming Drug Sickens Americans
Dec. 17 (Bloomberg)

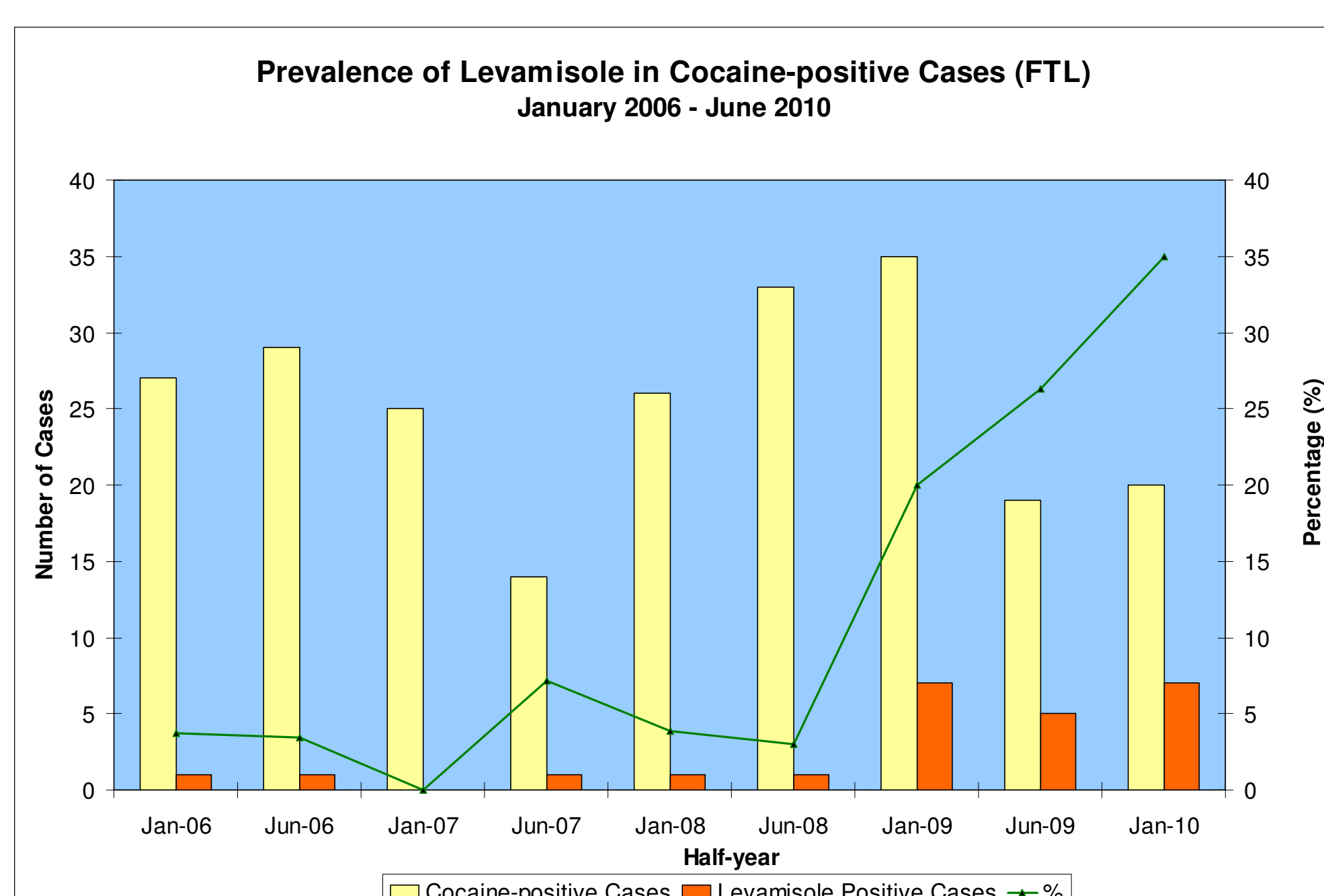
Tainted Supply: Cocaine Laced With Levamisole
from DrugWar Chronicle Issue #27, 2009

Yes, but what does it mean to us?

A study was undertaken to determine the prevalence of levamisole where cocaine and/or benzoylecgonine was detected in coronial specimens received at the Forensic Toxicology Laboratory (FTL) and the Drugs & Driving Toxicology Laboratory (DDL), Division of Analytical Laboratories.

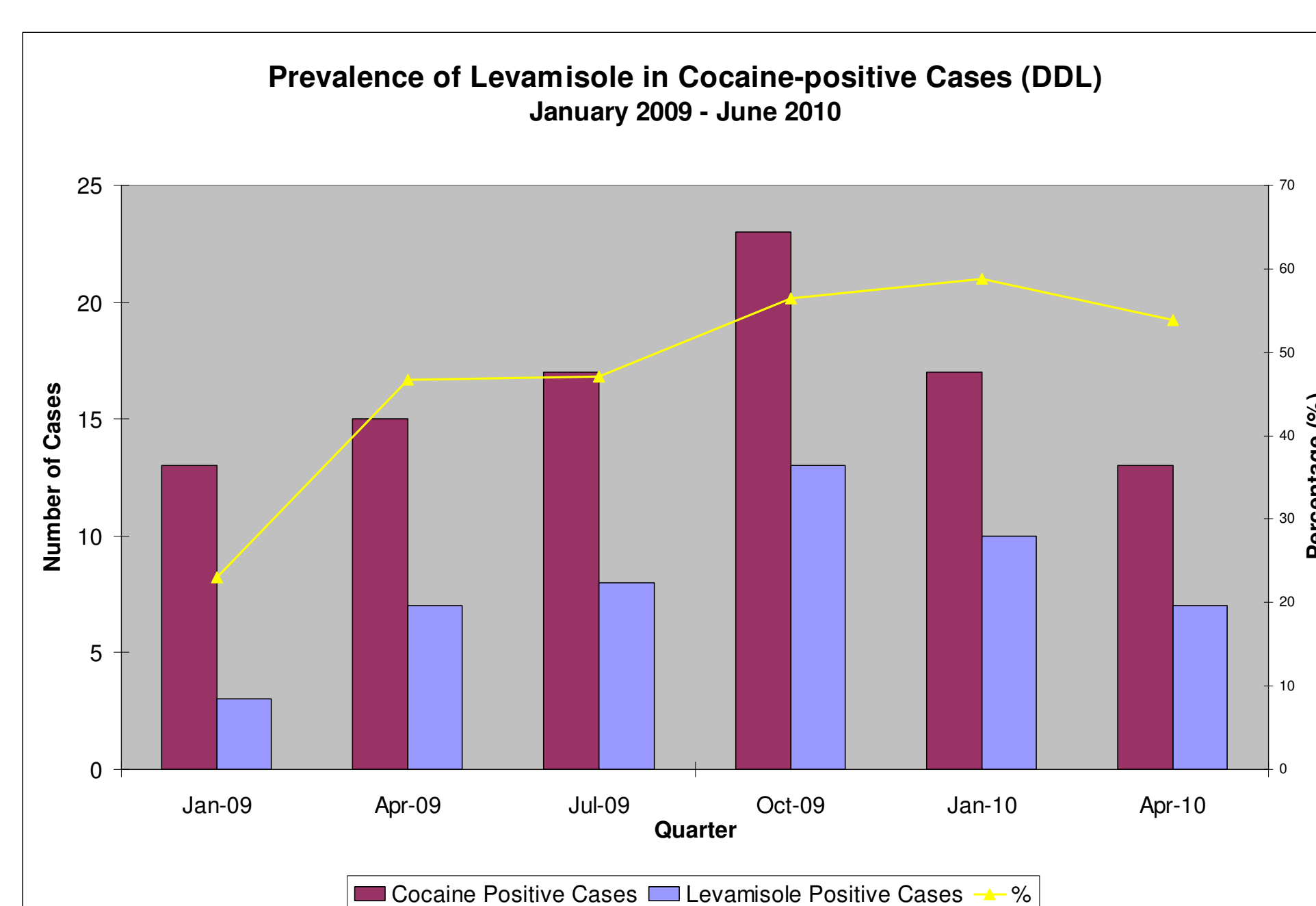
Our Results

Cocaine-positive coronial cases (FTL) from January 2006 onwards were re-examined to determine the presence of levamisole. Very few positive cases were found prior to 2009. The following graph shows the increasing prevalence of levamisole in cocaine-positive cases.



Levamisole in coronial specimens (FTL). 2006 - 2010

Mean concentration in blood = 0.56mg/L



Levamisole in drug/drive and other police specimens (DDL). 2009 - 2010

Mean concentration in blood = 0.035mg/L

Case Studies

A man in his early 40's was found hanging in his backyard. Analysis of preserved blood produced the following:

Cocaine 0.05mg/L
Benzoylecgonine 0.18mg/L
Levamisole 0.06mg/L

Other drugs present: Alcohol, Sertraline

A woman in her early 20's found dead of a suspected drug overdose. Analysis of preserved blood produced the following:

Cocaine 4.9mg/L
Benzoylecgonine 3.4mg/L
Levamisole 4mg/L

Other drugs present: Methylecgonine, Alprazolam, Delta-9-THC Acid, Lignocaine

A man in his early 50's found dead in his bathtub with a self inflicted wound to his wrist. Analysis of preserved blood produced the following:

Cocaine <0.05mg/L
Benzoylecgonine 0.81mg/L
Levamisole 0.3mg/L

Other drugs present: Cocaethylene, Alcohol, Diazepam, Nordiazepam, Temazepam, Quinine

What should we do next?

Levamisole has become a drug of interest for the Forensic Toxicology Laboratory. The negative health effects and increasing prevalence in conjunction with cocaine has made it necessary for the laboratory to incorporate levamisole screening into cases in which cocaine or cocaine metabolites are present.



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