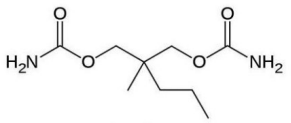
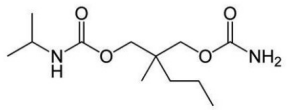
Carisoprodol & Meprobamate

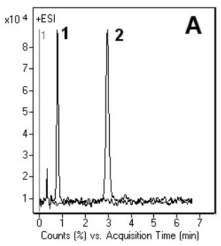
Analysis of Closely Related Compounds

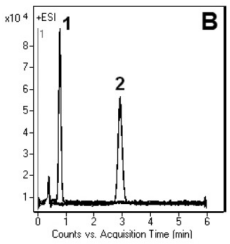


1. Meprobamate



2. Carisoprodol





Note: Meprobamate is a carbamate used as a sedative drug since the 50's. It is also the main active metabolite of carisoprodol, a skeletal muscle relaxant. Meprobamate is still widely prescribed, however it can be toxic which under some circumstances can lead to death. It is very often involved in accidental or suicidal overdoses. For all these reasons identification and quantification of both drugs is very important in toxicology. Carisoprodol is manufactured and marketed in the United States by Meda Pharmaceuticals Inc. under the brand name SOMA not to be confused with the fictional drug mentioned in Brave New World by Aldous Huxley.

Method Conditions

Column: **Cogent Bidentate C18™**, 4µm, 100Å

Catalog No.: 40018-05P-2

Dimensions: 2.1 x 50 mm

Mobile Phase: Isocratic 70% A / 30% B

Solvents: A: DI H_2O + 0.1% formic acid
B: Acetonitrile + 0.1% formic acid

Gradient:

time (min.)	%B
0	40
5	100
6	40

Injection vol.: 1µL

Flow rate: 0.4 mL/min

Detection: ESI — POS - Agilent 6210 MSD TOF mass spectrometer

Sample: 1: Meprobamate 219.1339 m/z $(M+H)^+$ RT = 0.79 min
2: Carisoprodol 261.1809 m/z $(M+H)^+$ RT = 2.73 min
Sample panel A: 300 ng/mL prepared in methanolhen
Sample panel B: urine extract, actual samples

t_0: 0.4 min

Discussion

Several methods have previously been reported for the quantitation of closely related compounds meprobamate and carisoprodol in biological samples (plasma, urine, hair etc). Most of these methods present drawbacks such as excessive analysis time and complex sample & time consuming pre-treatment (derivatization, solid or liquid phase extraction). This method shows a rapid and simple way to quantitate both drugs in biological samples such as urine or plasma after a simple one-step protein precipitation with acetonitrile. The [^{13}C - $^{2}H_3$] - meprobamate is recommended to be used as internal standard. When a lower detection limit is required for the analysis, the use of LC-MS/MS is recommended.

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