Health Canada Santé Canada

STATUS DECISION OF CONTROLLED AND NON-CONTROLLED SUBSTANCE(S)

Substance: Norlaudanosine

Based on the current information available to the Office of Controlled Substances, it appears that the above substance is:

Controlled	✓
Not Controlled	☐

under the schedules of the *Controlled Drugs and Substances Act* (CDSA) for the following reason(s):

- The substance is a metabolite of laudanosine, an alkaloid present in Opium Poppy, and therefore included under item 1 of Schedule I to the CDSA.

Prepared by: _____ Date: December 6th, 2011
Evelyn C Soo

Verified by: _____ Date: _____
Mark Kozlowski

Approved by: _____ Date: _____
DIRECTOR, OFFICE OF CONTROLLED SUBSTANCES

This status was requested by: "third party information removed as per agreement with applicant"

Drug Status Report

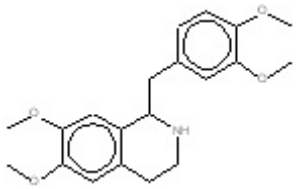
Drug: Norlaudanosine

Drug Name Status: Norlaudanosine is the common name.

Chemical Name: 17-(Cyclopropylmethyl)-4,5-epoxymorphinan-3,6beta,14-trol

Other Names: 1-(3,4-dimethoxybenzyl)-6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline

Chemical structure:



Molecular Formula: $C_{20}H_{25}NO_4$

CAS RN: 13074-31-2

Pharmacological class / Application: Pharmaceutical-related substance

International status:

US: Norlaudanosine is not listed on the schedules to the US Controlled Substances Act and is not mentioned anywhere on the DEA website.

United Nations: The substance is not listed on the Yellow List - List of Narcotic Drugs under International Control, the Green List - List of Psychotropic Substances under International Control, nor the Red List - List of Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances Under International Control.

Canadian Status: Norlaudanosine is not listed specifically in the CDSA. The substance is a tetrahydroisoquinoline alkaloid and has been reported in the scientific literature to be identified as an impurity in illicit samples of heroin[1]. It is also a major metabolite of laudanosine which itself a minor alkaloid constituent of opium[2] and a metabolite of the neuromsucular blocking

---

[1]Lurie, IS and Toske SG (2008) Applicability of ultra-performance liquid chromatography-tandem mass spectrometry for heroin profiling, J. Chromatogr. A **1188**:322-326.

[2]Toske SG et al. (2006) Natural heroin impurities from tetrahydrobenzylisoquinoline alkaloids, J Forensic Sciences, **51**:308-320.

drug , atracurium[3]. Currently, atracurium is listed in Schedule F to the *Food and Drugs Regulations* while item 1of Schedule I is "Opium Poppy (Papaver somniferum), its preparations, derivatives, alkaloids and salts including". As norlaudanosine is a derivative of the opium alkaloid laudanosine, the substance is considered captured under item 1 of Schedule I to the CDSA. It is noteworthy a review of 8,14-dihydrooripavine considered the substance to be included under item 1 of Schedule I to the CDSA as a derivative of the oripavine, which is a metabolite of thebaine (sub-item 1(4)).

Recommendation: Norlaudanosine is included under item 1 of schedule I to the CDSA and is a controlled substance.

Date: December 6th, 2011

[3]Ramzan, I. (1991) High-performance liquid chromatographic assay for laudanosine in biological fluids and tissue for neurotoxic studies in rat, J. Chromatogr. Biomed. Applications, **565**:465-470.