

VI. Protected Wildlife Products Identification

A. Ivory identification :

1. Introduction: The word “ivory” was traditionally applied only to the tusks of elephants. However, the chemical structure of the teeth and tusks of mammals is the same regardless of the species of origin. The trade in certain teeth and tusks in addition to elephant is well established and widespread. Therefore, “ivory” can correctly be used to describe any mammalian tooth or tusk of commercial interest which is large enough to be carved for arts.

2. Categories of ivory:

| Source (Protected Species) | Source (General Wildlife) |
|-----------------------------|---------------------------|
| Elephant (Asian, African) | Mammoth (fossil ivory) |
| Narwhal, Killer/Sperm Whale | Walrus |
| Hippopotamus | Warthog |

3. Methods of identification: Morphological examination, UV fluorescence test, FT-IR, and Pyrolyzer-GC/MS.



Ivory products

B. Bear bile identification :

1. Introduction: Bear bile (Xiong-Dan, Fellea Ursi), an important ingredient used in traditional Chinese medicine (TCM), is the dried gallbladder with bile of *Selenarctos thibetanus* or *Ursus arctos L.* under the family of Ursidae.
2. Methods of identification: HPLC/ IonTrap MS.



Bear bile products (TCM with bear bile in the ingredients)

C. Musk identification :

1. Introduction: Musk (She-Xiang, Moschus), a valuable ingredient in TCM, is the dry secretion in sachet of mature male *Moschus moschiferus L.*, *Moschus berezovskii F.*, or *Moschus sifanieus P.* of family Moschidae.
2. Method of identification: GC/MS.



Musk products (TCM with musk in the ingredients)

D. Tortoiseshell identification :

1. Introduction: Tortoiseshell is a material produced from the shells of the larger species of sea turtle, mainly the Hawksbill turtle (*Eretmochelys imbricata squamata*).

Methods of identification: Morphological examination, FT-IR, and



Pyrolyzer-GC/MS.

Tortoiseshell products