

ESSENTIAL OIL INGESTION



“Don Quixote reading in his study” Gustave Dore, woodcut print, 1887.

“Somewhere in La Mancha, in a place whose name I do not care to remember, a gentleman lived not long ago ...

Our gentleman was approximately fifty years old, his flesh scrawny, his face gaunt, and he was a very early riser and a great lover of the hunt. Some claim that his family name was Quixada, or Quexada, for there is a certain amount of disagreement among the authors who write of this matter; although reliable conjecture seems to indicate that his name was Quexana. But this does not matter very much to our story; in its telling there is absolutely no deviation from the truth.

And so, let it be said that this aforementioned gentleman spent his times of leisure-which meant most of the year-reading books of chivalry with so much devotion and enthusiasm that he forgot almost completely about the hunt and even about the administration of his estate; and in his rash curiosity and folly he went so far as to sell acres of his arable land in order to buy books of chivalry to read, and he brought as many of them as he could into his house; and he thought none was as fine as those composed by the worthy Feliciano de Silva, because the clarity of his prose and complexity of his language seemed to him more valuable than pearls, in particular when he read the declarations and missives of love, where he would often find written: “The reason for the unreason to which my reason turns so weakens my reason that with reason I complain of thy beauty”, and also when he read... “The heavens on high divinely heighten thy divinity with the stars and make thee deserving of the deserts thy greatness deserves”

With these words and phrases the poor gentleman lost his mind, and he spent sleepless nights trying to understand them and extract their meaning, which Aristotle himself, if he came back to life for only that purpose would not have been able to decipher or understand...

The truth is that when his mind was completely gone, he had the strangest thought any lunatic in the world ever had, which was that it seemed reasonable and necessary to him, both for the sake of his honour and as a service to the nation, to become a knight errant and travel the world with his armour and his horse to seek adventures and engage in everything he had read that knights errant engaged in, righting all manners of wrongs and, by seizing the opportunity and placing himself in danger and ending those wrongs, winning eternal renown and everlasting fame.”

Miguel de Cervantes, Don Quixote, 1605-1615.

And so Don Quixote sets out with his faithful squire, the simple minded Sancho Panza, on his quest of knight errantry. In his deranged state of mind he fights many imagined battles and rights many imagined wrongs to the immense amusement of all those in the surrounding countryside. He becomes a figure of ridicule, yet through all this he is somewhat admired for his high principles and well meaning. Cervantes’s Don Quixote is one of the earliest true novels and one of literature’s greatest. Great, because it still strikes a universal chord even over four centuries after it was written, with respect to not only its humour, but also its observations on life in general. Continuously ridiculed and repeatedly beaten to within an inch of his life, Don Quixote over the course of the thousand page novel gradually endears himself to us through his kind hearted nature and well meaning “adventures”. We admire his persistent clinging to his principles of knight

errantry, even though he continually puts his life in extreme peril. We begin to feel sorry for him, none more so than in the closing pages when he finally comes to his senses and admits to his tearful niece that his adventures have been nothing but a chimera. When his relatives and friends hear this confession there is a certain amount of poignant sadness that the fantasy world of Knight Errantry he created for them all to enjoy has come to an end. They try to lift his spirits by pretending he is still the great Knight, but he is not to be deceived.

In the closing pages, Cervantes continues...

“What is your grace saying, Senor? Is there news? Which mercies are these, and which sins of men?”

“The mercies, Niece,” responded Don Quixote, “are those that God has shown to me at this very instant, and as I said, my sins do not hinder them. My judgement is restored, free and clear of the dark shadows of ignorance imposed on it by my grievous and constant reading of detestable books of chivalry. I now recognize their absurdities and deceptions, and my sole regret is that this realization has come so late it does not leave me time to compensate by reading other books that can be a light to the soul. I feel I am soon to die, Niece, I should like to do so in a manner that would make it clear that my life was not so wicked that I left behind a reputation for being a madman, for although I have been one I should not like to confirm this truth in my death.”

In the 21st century we are still confronted with well meaning fantasies. In the medical field one such comes to us in the form of the “essential oils”. Like the confusion over Don Quixote’s real name there is not even agreement as to what the term means among those “who write on this matter”. Modern advertising campaigns bombard us with detestable falsities, just as Don Quixote was so bombarded by his books of chivalry. Not even Aristotle himself, were he to come back to life for just this one purpose, would be able to make any sense out of what is sometimes written about these oils. Essential oils make us feel good, as did the world of gallant knight errantry for Don Quixote, however they are a chimera when it comes to the medicinal claims that are made for them by some. In fact if ingested the CNS will be positively poisoned, the well meaning fantasy unfortunately can be quite dangerous. Though it sometimes hurts to dispel cherished beliefs, it must be done so when those beliefs are clearly wrong and may potentially lead to extreme peril and threat to life.

ESSENTIAL OIL INGESTION

Introduction

“Essential oils” are commonly used for “medicinal” purposes.

They have no *actual* medicinal uses.

They are toxic even when small amounts are ingested. Coma and seizures may occur. Death may result without adequate supportive management.

Treatment is supportive.

Children most commonly ingest only small amounts; adults may intentionally ingest larger amounts.

Common examples include:

- **Eucalyptus oil**
- Clove oil
- Pennyroyal oil
- Camphor products

Chemistry of Essential Oils:

Eucalyptus oil, aroma therapy oils and tea tree oils are sometimes referred to as “essential oils”.

An essential oil is a lay term for any concentrated, volatile aromatic compound extracted from plants which in turn are commonly referred to as aromatic herbs or plants.

The term *essential* indicates that the oil carries a distinctive scent (essence) of the plant, rather than to any particular chemical attribute. Essential oils therefore do not as a group need to have any specific chemical properties in common, beyond conveying characteristic fragrances.

Chemically they are complex mixtures of hydrocarbon compounds that extracted from various plants. Most oils are extracted by a distillation process. They are volatile, lipid soluble, usually colourless.

Interest in essential oils has revived in recent decades, with the popularity of aromatherapy, a branch of “alternative medicine” which claims that the specific aromas carried by essential oils have curative effects. Oils are volatilized or diluted in a carrier oil and used in massage, or burned as incense, for example.

Pharmacokinetics

Absorption is rapid and complete following ingestion

Some absorption may occur via inhalation.

Minimal absorption occurs following dermal exposure

Pathophysiology

The exact mechanism of CNS depression is unknown.

Risk Assessment²

For eucalyptus oil:

- 2-3 mls of 100% preparations may cause some CNS depression.
- Greater than 7.5 mls of 100% preparations may cause severe CNS depression.

These doses may be different for other essential oils. For example, clove oil, pennyroyal oil and camphor products may be even more toxic.

Vaporiser solutions have properties similar to those of essential oils, but are much less concentrated (e.g. 20% to 25% concentrations are common).

Clinical Features

Essential oils are rapidly absorbed and symptoms, if they develop, will usually be seen within **30 minutes** of ingestion

Eucalyptus oil is the most common essential oil poisoning.

Less information is available on other essential oils although the effects are generally similar.

In general terms:

1. CNS:

This causes the major toxicity. Features include:

- Rapid onset of depressed conscious state
- Seizures
- Coma

2. Pulmonary:

- Aspiration may cause a chemical pneumonitis.
3. GIT:
- Nausea and vomiting
 - Hepatotoxicity has been reported following ingestion of some essential oils (particularly clove oil and pennyroyal oil).³
4. CVS:
- Severe ingestions may cause hypotension and tachycardia.

Investigations

None are routinely necessary when the clinical situation is clear.

Investigations may be necessary when alternative diagnoses or secondary complications need to be excluded and these will then be done according to the index of suspicion for any given condition.

CXR should be done if there are signs or symptoms of respiratory distress.

Management

In general terms for eucalyptus oil ingestions:

1. The immediate priority will be attention to any ABC issues.
 - Intubation and ventilation will be required for patients with depressed a conscious state.
2. Consider IV access, because of the potential for rapid deterioration.
3. Charcoal:

Charcoal is **not** indicated due to:

 - Very rapid absorption
 - The high likelihood of depression of conscious state and/or seizures.
 - Activated charcoal does not effectively bind hydrocarbon compounds.
 - Aspiration may result in pneumonitis.
4. Seizures:

- These are treated with IV benzodiazepines.

5. Hypotension:

- IV fluid resuscitation.

For other essential oils seek Toxicologist advice.

Disposition:

For eucalyptus oil:

- Close observation is mandatory in *any* ingestion of eucalyptus oil because of the significant risk of CNS toxicity.
- Patients who are well and symptom free at 2 hours may be medically cleared.

For other essential oils seek Toxicologist advice.

References

1. Hydrocarbons in L Murray et al. Toxicology Handbook 2nd ed 2011.
2. Toxicology Therapeutic Guidelines 2nd ed 2012.
3. TOXBASE - UK Website.
 - www.toxbase.org

Dr J. Hayes.

Reviewed June 2013.