

TEA TREE OIL ADULTERATION

Tackling the problem with trust.

The global authority on tea tree oil.



The Australian Tea Tree Industry (ATTIA Ltd) takes pride in being the globally trusted information source on tea tree oil and is taking action to tackle the problem of adulterated tea tree oil products flooding the market.



The purity problem

Pure tea tree oil, the essential oil distilled from the leaves of *Melaleuca alternifolia*, is chemically and physically characterised by the ISO Standard 4730:2017. The compound terpinen-4-ol is the largest constituent of more than 133 different components, at a range of 30 - 48%.

But not all products labelled as tea tree oil can be trusted.

Some companies deliberately adulterate tea tree oil to maximise profits.

💧 Synthetic Products

Manufacturers deceptively mimic the physical properties of *Melaleuca alternifolia* to conform to international standards.

Some synthetic products are even labelled as pure or natural identical oil – don't risk products.

These synthesised compounds, masquerading as tea tree oil, have no scientific evidence to support their safety and effectiveness.

💧 Additives

Unscrupulous manufacturers add fillers, additives, and impurities to bulk out what may or may not have started out as real tea tree oil.

Implications

💧 Lack of Efficacy

100% pure Australian Tea Tree Oil contains more than 113 naturally occurring compounds.

These compounds work synergistically to produce the highly valued therapeutic properties of tea tree oil.

Almost all studies have used pure Australian tea tree oil. There is no evidence that adulterated oil and "nature identical" tea tree oil possess the proven anti-bacterial, anti-fungal, antiviral and anti-inflammatory properties of 100% pure Australia tea tree oil.

💧 Safety Concerns

Purity has a big impact on safety. Adulterating companies use various industrial wastes, often residuals from fractionations of pine and turpentine oils.

There have been case reports of people suffering burns and other adverse effects as a result of using adulterated or synthetic tea tree oil products.





Consumer trust.

Consumers now have a means to easily identify that the product they are purchasing contains 100% naturally distilled tea tree oil that meets International Standards.

Look for the ATTIA trustmark as a guarantee of 100% pure, regulated, traceable, safe, and effective tea tree oil.

Combatting the problem of tea tree oil adulteration.

Commercial standards are important in the identification of adulterated tea tree oil.

The International Standard for Oil of Melaleuca, Terpinen-4-ol type (ISO 4730: 2017) stipulates required levels for 15 of the 113+ naturally occurring compounds to facilitate assessment of its quality.

- 🌿 ISO 4730: 2017 also specifies several physical characteristics such as colour and odour.
- 🌿 The standard also stipulates a range for the enantiomeric (chiral) ratio of terpinen-4-ol to provide an extra measure of authenticity: the oil must have a terpinen-4-ol chiral ratio of ~30% negative and ~70% positive enantiomers. While there are other chiral molecules in tea tree oil (e.g. limonene), only terpinen-4-ol has been specified at this time in the standard.

Component	ISO 4730 (range %)
α -pinene	1 - 6
sabinene	trace - 3.5
α -terpinene	5 - 13
limonene	0.5 - 8
p-cymene	trace - 15
1,8,cineole	10 - 28
terpinolene	1.5 - 5
terpinen-4-ol	30 - 48
α -terpineol	1.5 - 8
aromadendrene	trace - 3
ledene	trace - 3
δ -cadinene	trace - 3
globulol	trace - 1
viridiflorol	trace - 1

Compliance doesn't always mean quality.

Investigations into adulterated tea tree oil indicate that the components in these oils are often limited only to the 15 constituents required by the International and Australian Standards. So even synthetic and adulterated natural oils pass the quality standards too if a chiral test is not performed.

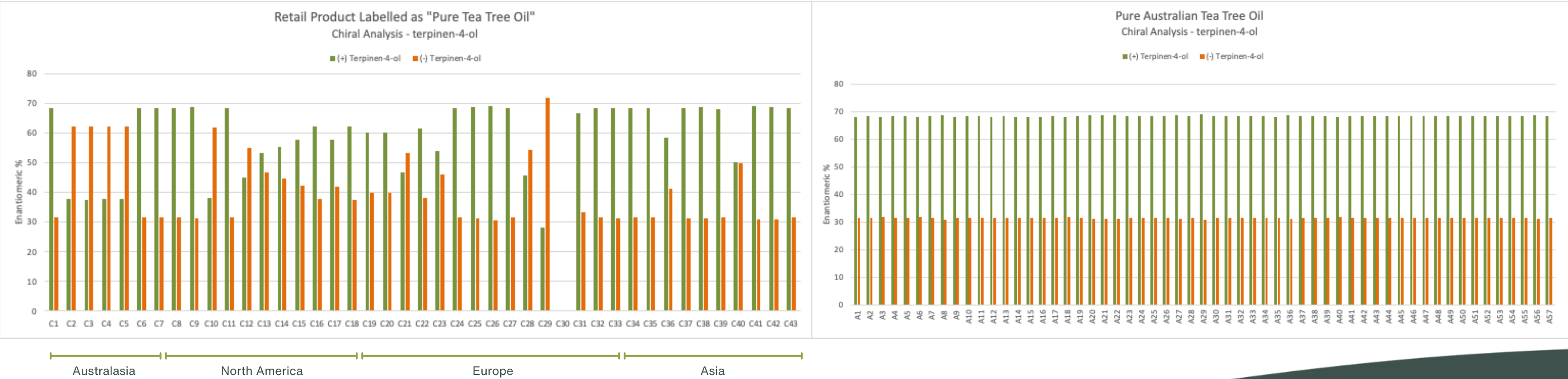
- 🌿 **ATTIA actively monitors global product adulteration.**

ATTIA runs its own product monitoring program to protect the interests of consumers with regard to safety and efficacy.



Testing

- Unfortunately you can't tell whether an oil is adulterated without running a sample through laboratory quality control tests.
- The graph below right shows 57 tea tree oil samples of known provenance and purity. The 30/70 chiral ratio is well controlled. The graph below left shows testing of retail tea tree oil bottles collected globally, clearly demonstrating which samples are adulterated and which are pure and conform to the 57 Australian sample results.¹



ATTIA Code of Practice sets the global benchmark for tea tree oil quality

- 🌿 The Code of Practice is a Quality Assurance system to regulate all facets of the production of 100% pure Australian tea tree oil, from seed to drum and beyond.
- 🌿 Australian producers are global leaders in the soil and plant sciences related to tea tree growing and 100% pure Australian tea tree oil is distilled under ATTIA's strict and regularly audited Code of Practice.
- 🌿 In short, 100% pure Australian tea tree oil provides the stability that regulated markets demand.



ATTIA Code of Practice (COP) Certified Oil is identified by the ATTIA Trustmark. It's the only way to know that the product you're getting is 100% pure Australian tea tree oil.



Learn more about the COP and how to apply to place this certified trademark on your own products.

The Global Authority on Tea Tree Oil

THE WORLD'S MOST STRINGENT QUALITY CONTROLS

100% pure Australian tea tree oil is the steam-distilled essential oil of *Melaleuca alternifolia* (Myrtaceae), native to the East Coast of Australia. Look for the ATTIA trustmark as a guarantee of 100% pure, regulated, traceable, safe, and effective tea tree oil.

ATTIA CODE OF PRACTICE

First implemented in 2005, the ATTIA Code of Practice is a Quality Assurance system to regulate all facets of the production of 100% pure Australian tea tree oil, from seed to paddock, and distillery to drum. Compliance with the Code of Practice (COP) is a stringent mandatory requirement to be a Certified ATTIA member, which ensures the quality and safety of 100% pure Australian tea tree oil.

TEA TREE OIL STANDARDS

Commercial standards specify certain characteristics of the essential oil of *Melaleuca*, terpinen-4-ol type (tea tree oil).

CERTIFICATION PROCESS

Certified Members are subject to a rigorous Code of Practice auditing process, involving:

- all aspects of the operation
- up to 8 hours per audit depending on the business
- two passed audits to become certified
- yearly audit once compliant.

The certification process also ensures compliance with Australian Biosecurity, Workplace Health and Safety, and Pesticides Acts, Australian Pesticides and Veterinary Medicines Authority Regulations, and International Standards for tea tree oil, distillation, and the handling of dangerous goods.

There's a lot of misinformation when it comes to tea tree oil.

From scientific research to the latest information on tea tree oil, the Australian Tea Tree Industry (ATTIA Ltd) takes pride in being the globally trusted information source on tea tree oil.



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 Web: www.attia.org.au



References:

1. Wong, YF; Davies, Noel; Chin, S-T; Larkman, T; Marriott, PJ (2015). *Enantiomeric distribution of selected terpenes for authenticity assessment of Australian Melaleuca alternifolia oil. University of Tasmania. Journal contribution.*
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