

Egyptian Herbal Monograph

Volume 4

Essential Oils with Medicinal Uses

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***Gaultheria procumbens* L. and *G. fragrantissima* Wall. شاي كندا**

1. Names & Synonyms (1)

***Gaultheria procumbens* L.**

Syns.: *Brossaea procumbens* (L.) Kuntze, *Gautiera procumbens* (L.) Torr.

***Gaultheria fragrantissima* Wall.**

Syns.: *Brossaea fragrantissima* (Wall.) Kuntze.

Family: Ericaceae.

Arabic name: Shai kanada شاي كندا (2).

English name: Wintergreen (3), Teaberry, Checkerberry, Gaultheria, Boxberry, Deerberry, Mountain Tea and Canada Tea (4, 5).

2. Part(s) used for oil extraction

G. procumbens L.: Aerial parts (leaves – stems – fruits) (6).

G. fragrantissima Wall.: Leaves (7).

3. Major chemical constituents

- *G. procumbens* L.: Methyl salicylate (8).

- *G. fragrantissima* wall.: Methyl salicylate and asarone (7).

4. Medicinal Uses (Indications) (9)

- Joint, muscle pain and gout symptoms: helps reduce swelling, irritation, and relieve muscle, neck, and lower back pain.

5. Herbal preparations correlated to medicinal use

Essential oil.

Herbal preparation is in pharmaceutical dosage forms. The pharmaceutical form should be described by the pharmacopoeia full standard term.

6. Posology and method of administration correlated to medicinal use (9)

Adolescents and adults

10-30 %.

Method of administration: Topically.

Directions for use

- **Products in cream, emulsion, foam, gel, liniment, oil, ointment, salve, solution, suspension, topical liquid or wipe dosage form**

A thin and even layer should be applied to the affected area(s), up to 4 times per day. The solution should be rubbed and/or massaged into the skin until it vanishes.

- **Products in plaster or patch dosage form**

One plaster/patch should be applied to the affected area(s), up to 3 times per day. It should not be left on the skin for more than a total of 8 hours per day.

Duration of use: One week, or as directed by the physician.

7. Contraindications

- Individuals with known hypersensitivity to salicylates (e.g., aspirin) should avoid wintergreen oil, as it can provoke allergic reactions (10, 11).
- Patients with bleeding disorders such as hemophilia or those on anticoagulant therapy (e.g., warfarin) should not use wintergreen oil due to its blood-thinning properties (10, 11).
- Children under age 12 to prevent salicylate poisoning and serious adverse events (12).

8. Special warnings and precautions

- Undiluted application should never be done to avoid severe skin irritation, chemical burns, or systemic toxicity (13,14).
- Use should be avoided on broken or inflamed skin (13,14).
- Tightly bandaging is not recommended (9).
- The use of external heat, such as an electric heating pad, should be avoided, as it may cause skin irritation or burns (9).
- Patch Test is required to avoid allergic contact dermatitis in sensitive individuals.

Test a 1% dilution on the inner arm for 24 hours before wider use (3).

9. Interactions with other medicinal products and other forms of interaction

- Wintergreen oil can potentiate the effects of anticoagulant medications like warfarin by increasing the risk of bleeding (10, 11).
- Concurrent use with aspirin and salicylates containing products may enhance the risk of salicylate toxicity (10, 15).

10. Fertility, pregnancy and lactation

- Wintergreen oil should be avoided during pregnancy due to potential fetal risks. Use during breastfeeding is not recommended (3).
- No fertility data available.

11. Effects on ability to drive and use machines

No studies on the effect on the ability to drive and use machines have been performed.

12. Undesirable effects

- Skin irritation and redness have been reported with topical use, especially when applied undiluted (12). Burns are rarely reported (16).
- If adverse reactions occur, a doctor or a pharmacist should be consulted.

13. Overdose

- No case of overdose has been reported. However, wintergreen oil is known for its high concentration of methyl salicylate, a compound that can be toxic and even fatal if accidentally ingested (15, 17, 18).
- Excessive application may result in systemic toxicity. Recommended doses should not be exceeded (19) and long-term use should be avoided (12).

14. Additional Information

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15. Date of last revision

28/05/2025

References

1.	www.powo.science.kew.org
2.	https://umd.emro.who.int/WHODictionary/
3.	Tisserand, R. and Young, R. (2014). Essential Oil Safety: A Guide for Health Care Professionals. 2 nd Edition, Churchill Livingstone, New York. ISBN 978-0-443-06241-4.
4.	www.drugs.com
5.	Lawless, J. (2013). The Encyclopedia of Essential Oils: The Complete Guide to the Use of Aromatic Oils in Aromatherapy, Herbalism, Health, and Well Being. Conari Press, an imprint of Red Wheel/Weiser, LLC. San Francisco. ISBN: 978-1-57324-614-9.
6.	Michel, P. and Olszewska, M.A. (2024). Phytochemistry and biological profile of <i>Gaultheria procumbens</i> L. and wintergreen essential oil: From traditional application to molecular mechanisms and therapeutic targets. <i>Int. J. Mol. Sci.</i> , 25 (1): 565.
7.	Pandey, B.P., Thapa, R. and Upreti A. (2017). Chemical composition, antioxidant and antibacterial activities of essential oil and methanol extract of <i>Artemisia vulgaris</i> and <i>Gaultheria fragrantissima</i> collected from Nepal. <i>Asian Pac. J. Trop. Med.</i> , 10 (10): 952-959.
8.	Nikolić, M., Marković, T., Mojović, M., Pejin, B., Savić, A., Perić, T., Marković, D., Stević, T. and Soković, M. (2013). Chemical composition and biological activity of <i>Gaultheria procumbens</i> L. essential oil. <i>Industrial Crops and Products</i> , 49 : 561-567.
9.	Natural Health Product, Counterirritants (2025). Health Canada. https://webprod.hc-sc.gc.ca/nhp/nd-bdipsn/dblImages/mono_counterirritants_english.pdf
10.	Yip, A.S.B., Chow, W.H., Tai, Y.T. and Cheung, K.L. (1990). Adverse effect of topical methylsalicylate ointment on warfarin anticoagulation: an unrecognized potential hazard. <i>Postgraduate Medical Journal</i> , 66 (775): 367-369.
11.	Ramanathan, M. (1995). Warfarin--topical salicylate interactions: case reports. <i>The Medical Journal of Malaysia</i> , 50 (3): 278-279.
12.	Scott A. Johnson (2015). Evidence-based Essential Oil Therapy: The Ultimate Guide to the Therapeutic and Clinical Application of Essential Oils. Publisher: CreateSpace Independent Publishing Platform. ISBN 10: 1512175056, ISBN 13: 9781512175059.
13.	Worwood, V. A. (2016). The Complete Book of Essential Oils and Aromatherapy. 25 th anniv. ed., New World Library.
14.	Price, S. and Price, L. (2011). <i>Aromatherapy for Health Professionals</i> (5 th ed.). Churchill Livingstone.
15.	Cauthen, W.L. and Hester, W.H. (1989). Accidental ingestion of oil of wintergreen. <i>Journal of Family Practice</i> , 29 (6): 680-681.
16.	Food and Drug Administration (2012). FDA Drug Safety Communication: Rare cases of serious burns with the use of over-the-counter topical muscle and joint pain relievers. U.S. Department of Health And Human Services. https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-rare-cases-serious-burns-use-over-counter-topical-muscle-and-joint
17.	Botma, M., Colquhoun-Flannery, W. and Leighton, S. (2001). Laryngeal oedema caused by accidental ingestion of Oil of Wintergreen. <i>Int. J. Pediatr. Otorhinolaryngol</i> , 58 (3): 229-32.
18.	Chin, R.L., Olson, K.R. and Dempsey, D. (2007). Salicylate toxicity from ingestion and continued dermal absorption. <i>The California Journal of Emergency Medicine</i> , 8 (1): 23-25.
19.	Zopey, M. and Vintch, J.R.E. (2023). Bleeding duodenal ulcer as a complication of using oil of wintergreen, a potent salicylate. <i>Chest</i> , 164 (4): A2803.