

**Allergic contact dermatitis caused by both eucalyptus oil and spruce oil**

**Running Title:** Eucalyptus and spruce oil

Demet Kartal<sup>1</sup>, Levent Kartal<sup>2</sup>, Salih L Çınar<sup>1</sup>, Murat Borlu<sup>1</sup>

<sup>1</sup>Erciyes University Faculty of Medicine, Department of Dermatology and Venereology,  
Kayseri, Turkey

<sup>2</sup>Kayseri Education and Research Hospital, Department of Otorhinolaryngology, Kayseri,  
Turkey

**CORRESPONDENCE TO:**

Demet Kartal, MD.

Erciyes University, School of Medicine, Dermatology and Venereology Department  
38039-Kayseri, Turkey.

Tel:

E-mail: [demetkartal@hotmail.com](mailto:demetkartal@hotmail.com)

The authors share no conflict of interest

This study was not supported by any person or institution

1 Allergic contact dermatitis caused by both eucalyptus oil and spruce oil

## 2 **Abstract**

3 Infantum cold® (Sedomed İlaç Pazarlama-Konya-Turkey) is an inhalant ointment that helps  
4 to relieve nasal congestion due to upper respiratory tract infections. It contains only  
5 eucalyptus oil and spruce oil. Although many reports present allergic contact dermatitis  
6 (ACD) due to eucalyptus oil and spruce oil separately there are no cases caused by both oil.  
7 We present a case of a pediatric patient who developed an ACD secondary to application of  
8 Infantum cold®. We believe that ACD due to eucalyptus oil and spruce oil might be more  
9 common than currently described in the literature. We encourage others to test with  
10 eucalyptus oil and spruce oil if there is clinical indication.

## 11 **Introduction**

12 Allergic contact dermatitis (ACD) is one of the two types of contact dermatitis, that is, it  
13 represents the manifestations of an allergic response caused by contact with a substance, the  
14 other type being irritant contact dermatitis. It represents an eczematous pathology, wherein a  
15 specific exogenous allergen triggers an inflammatory response through the mechanism of  
16 delayed hypersensitivity.

17 Infantum cold® (Sedomed İlaç Pazarlama-Konya-Turkey) is an inhalant ointment that helps  
18 to relieve nasal congestion due to upper respiratory tract infections. Nowadays it is prescribed  
19 frequently to children for the reason that it's not a systemic treatment. It contains only  
20 eucalyptus oil and spruce oil. It is applied on the sweat collaret

21 Although many reports present allergic contact dermatitis (ACD) due to eucalyptus oil [1-7]  
22 and spruce oil [8] separately there are no cases caused by both oil. We present a case of a  
23 pediatric patient who developed an ACD secondary to application of Infantum cold®.

24

## Case

A 8 year-old girl presented with a 3 day history of erythematous lesions on her neck. Her history showed that these lesions appeared 1 day after the use of an inhalant ointment. She was not taking any other medication. She had been applying it every night on her pyjamas' collarets. On dermatological examination, dusky red colored, nummular patch of 6 cm diameter was present on her neck and a similar but smaller nummule of 4 cm diameter on her right upper clavicular area. Her examination revealed sharp bordered erythematous macular lesion on her neck and upper chest (Figure1). Patch testing was performed with the European baseline series from Chemotechnique Diagnostics (Malmö, Sweden). Finn Chambers® (8 mm; SmartPractice®, Phoenix, AZ, USA) on Scanpor® tape (Norgesplaster A/S, Vennesla, Norway) were used. The spruce oil was purchased commercially as 100%, and diluted to 5% in pet. by a pharmacist.

The occlusion period was 48 hours. The initial reading was half an hour after the removal of the patches. A second reading was performed at day D4 according to the ICDRG guidelines. No reactions were seen to the European baseline series components. A ++ reaction was noted with the spruce oil and +++ reaction with the eucalyptus oil. Both eucalyptus and spruce oils were tested in the same way in 3 healthy controls, with negative results.

## Discussion

During the recent years, inhaler ointments have become popular and are widely available in Turkey. Most of the ointments contain eucalyptus and spruce oils. Rudzki et al. reported multiple sensitivity to essential oils used in cosmetics for the first time in 1976 [1]. Nowadays essential oils in cosmetics causing allergic contact dermatitis is well known. Contact dermatitis from eucalyptus oil has been well documented. It is present in the fruits, leaves, bark, and buds of eucalyptus trees [5]. Four cases of contact dermatitis caused by eucalyptus

1 plant [6], Vicks VapoRub [7] or aromatherapy [4, 8] with eucalyptus have been reported on  
2 PubMed. But we didn't find any report about allergic contact dermatitis due to spruce oil but  
3 only one case of occupational allergic contact dermatitis due to spruce sawdust [9] .  
4 Our case was categorized as definite Causality assessment of suspected adverse drug reactions  
5 (ADRs) using Naranjo's Scale, and the severity of the reaction was mild upon Hartwig Scale.  
6 On the basis of the Modified Schumock and Thornton Scales the reaction of the suspected  
7 ADRs was probably preventable [10-12].  
8 We believe that ACD due to eucalyptus oil and spruce oil might be more common than  
9 currently described in the literature. We encourage others to test with eucalyptus oil and  
10 spruce oil if there is clinical indication.

11

## 12 **Conclusion**

13 Infantum cold® is an inhalant ointment contains ingredients only eucalyptus oil and spruce oil  
14 which are potential sensitizing agents. Contact dermatitis from eucalyptus oil has been well  
15 documented. However, this is the first case of ACD due to both eucalyptus and spruce oil.

16

17

18

19

20

21

22

23

24

25

## References

1. Rudzki E, Grzywa Z, BruoW S (1976). Sensitivity to 35 essential oils. Contact Dermatitis. 1976;2: 196–200.
2. Schaller M, Korting H C. Allergic airborne contact dermatitis from essential oils used in aromatherapy. Clin Exp Dermatol.1995;20: 143–45.
3. Selvaag E, Holm J-Ø, Thune P. Allergic contact dermatitis in an aroma therapist with multiple sensitizations to essential oils. Contact Dermatitis.1995;33: 354–55.
4. Dharmagunawardena B, Takwale A, Sanders K J, Cannan S, Rodger A, Ilchyshyn A. Gas chromatography: an investigative tool in multiple allergies to essential oils. Contact Dermatitis.2002;47:288–92.
5. Zrira S, Bessiere JM, Menut C, et al. Chemical composition of the essential oil of nine eucalyptus species growing in Morocco. Flavour Fragr J 2004;19:172–5.
6. Gyldenløve M, Menné T, Thyssen JP. Eucalyptus contact allergy Contact Dermatitis.2014;71(5):303-04.
7. Noiles K, Pratt M. Contact dermatitis to Vicks VapoRub. Dermatitis.2010;21: 167–69.
8. Schaller M, Korting H C. Allergic airborne contact dermatitis from essential oils used in aromatherapy. Clin Exp Dermatol.1995;20:143–45.
9. Estlander T, Jolanki R, Alanko K, Kanerva L. Occupational allergic contact dermatitis caused by wood dusts.Contact Dermatitis.2001;44(4):213-17.
10. Naranjo CA, Busto U, Sellers EM, Sandor P, Ruiz I, Roberts EA, et al. A method for estimating the probability of adverse drug reactions. Clin Pharmacol Ther 1981;30(2):239-45.

- 1       **11.** Hartwig SC, Siegel J, Schneider PJ. Preventability and severity assessment in  
2       reporting adverse drug reactions. *Am J Hosp Pharm* 1992;49(9):2229-32.
- 3       **12.** Lau PM, Stewart K, Dooley MJ. Comment: hospital admissions resulting from  
4       preventable adverse drug reactions. *Ann Pharmacother* 2003;37(2):303-4; author  
5       reply 304-5.



1  
2

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
  
15  
  
16  
  
17  
  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
  
29  
  
30  
  
31  
  
32  
  
33

**Figure Legend:**

**Figure1:** Sharp bordered erythematous maculer lesion on her neck and upper chest.