

# Phytocontact Dermatitis Due to *Ranunculus Kotschy* Boiss : Adverse Effect for Artralgia Treatment

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## Abstract

There has been a great variety of cases relating to herbal therapies across the world. Some of them do not have any risks, whereas some others may result in severe complications. *Ranunculus kotschy* (buttercup) is a wild annual plant belonging to Ranunculaceae family. Many phytocontact dermatitis cases associated with the members of the Ranunculaceae family have been reported. In this case report, we present a 60-year-old female patient suffering from irritant phytocontact dermatitis secondary to topical use of *Ranunculus kotschy*.

**Key words:** *Ranunculus Kotschy*, Contact, *Ranunculus*, Irritant Contact Dermatitis, Phytocontact Dermatitis.

## INTRODUCTION

There are so many plants in the world that it may be really challenging sometimes to determine the cause of dermatitides in a patient. Plants may contain a wide range of substances that may induce an allergic response. Many types of plant-induced dermatitis such as contact urticaria, phototoxic contact dermatitis, allergic contact dermatitis, irritant contact dermatitis, and photoallergic contact dermatitis have been identified in the past. Phytocontact dermatitis is described as damage caused by an acute inflammatory reaction in a part of the skin that has contacted the relevant plant. The plant in this case is

*Ranunculus kotschy* Boiss (Figure 1) which is a type of *Ranunculus kotschy*. Sub-species of *Ranunculus kotschy* contain an ingredient called Ranunculin which causes phytocontact dermatitis (1-3).

## CASE REPORT

A 60-year-old female patient complained of pain, redness and bullous lesions on her knees. She lives in Gölbaşı County of the City of Ankara, capital city of Turkey. She stated that two days ago, she had applied a plant to her knee for the relief of joint pain for 3 hours. She applied that plant to the knee only once. She also stated that

*Cite this article as:* Kadı G, Durak ME, Öktem B, Demircan A, Keleş A. Phytocontact Dermatitis Due to *Ranunculus Kotschy* Boiss: Adverse Effect for Artralgia Treatment. Arch Curr Med Res 2021;2(1):62-64

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she had picked up the plant from a nearby rural area. Dermatological examination revealed 10 x 15 cm bullous, blister-like lesions on an erythematous base. Severe pain, burning sensation, redness, vesicles, blisters, crusts, bullae, post-inflammatory hyperpigmentation and ulcerated erosive plaques were also seen. There was no restriction regarding range of mobility of the joints (Figure 2). Partially spontaneously drained zones were observed. The medical history and laboratory tests of the patient were unremarkable.

The plant brought by the patient was searched for in the literature and examined by the specialists upon which it was identified to be *R. kotschyi*. Most people resort to herbal therapeutic agents due to medical conditions. They may sometimes be very useful, whereas they mostly may have unexpected adverse effects. These may include contact dermatitis and secondary infections. These contact dermatitides may cause phytodermatitides. And our patient has phytodermatitis since it is identified with contact dermatitis developing in the affected area following herbal administration (4). Species of the *Ranunculus* genus are a group of plants frequently used in Turkey for joint pain. There are 6 known cases of *R. kotschyi*-associated contact dermatitis reported so far. These cases have been reported in the city of Van, Turkey (5). Our case has similar results to these cases. The lesions are similar.

## DISCUSSION

Ranunculaceae family is a large group with nearly 2000 species. It is used as an herbal therapeutic agent in East and Central Anatolia (6). It can grow at an altitude of 2,000 km. Members of the Ranunculaceae family, which are annual plants, have a wide range of traditional therapeutic uses such as abscess drainage, hemorrhoid, burns, cuts, muscle pain, joint pain and abrasions. Ranunculaceae family phytometabolites has been shown to have a key role in their anticancer, antioxidant, cytotoxic, rheumatic pain, analgesic, anti-inflammatory and antiseptic activities (7, 8).

Usually, Ranunculin is responsible for the irritant effects. Ranunculin causes toxic effects with oxygen radicals it produces by inhibiting DNA polymerase. Ranunculin is an unstable and acrid glucoside (9, 10). It may be contained in either the roots or the leaves. Upon contacting the skin, it is decomposed into glucose and the toxin

'protoanemonin' because of a number of enzymatic processes. Protoanemonin is a volatile and irritant fatty molecule. The level of protoanemonin in the plant is directly proportional to the maturity and quantity of flowers of the plant. Their systemic intake may cause GIS irritant effects, nausea, vomiting, stomachache, diarrhea, and neurological symptoms.

The patient was discharged early from the hospital. This patient was treated with systemic antibiotics and non-steroidal anti-inflammatory drugs (NSAIs). Additionally, topical wet dressings with eau de brique solution and prednisolone + iodochlorhydroxyquin pomade were applied to the lesion zones daily. Dermatology control was recommended to the patient 3 weeks later. It was observed that the lesions tended to heal when the patient came for control (Figure 3).

**Figure 1.**



**Figure 2.****Figure 3.**

*R. kotschy* Boiss is a subspecies within Ranunculaceae family and causes phytodermatitis also known as irritant contact dermatitis. The present case is one of the rare cases reported concerning *R. kotschy*.

### Declarations

The authors received no financial support for the research and/or authorship of this article. There is no conflict of interest.

### REFERENCES

1. Gönül M, Gül U, Cakmak SK, Kiliç S. Unconventional medicine in dermatology outpatients in Turkey. *Int J Dermatol.* 2009;48(6):639-44.
2. Polat M, Oztas P, Yalcin B, Tamer E, Gur G, Alli N. Contact dermatitis due to *Allivum sativum* and *Ranunculus illyricus*: two cases. *Contact Dermatitis.* 2007;57(4):279-80.
3. Akbulut S, Semur H, Kose O, Ozhasenekler A, Celiktas M, Basbug M, et al. Phytodermatitis due to *Ranunculus arvensis* mimicking burn injury: report of three cases and literature review. *Int J Emerg Med.* 2011;4(1):7.
4. Ozkol HU, Calka O, Akdeniz N, Pinar SM. Phytodermatitis in eastern Turkey: a retrospective, observational study. *Dermatitis.* 2014;25(3):140-6.
5. Calka O, Akdeniz N, Özkol HU, Karadag AS, Behçet L. Irritant contact dermatitis caused by *Ranunculus kotschy* Boiss in 6 cases. *Contact Dermatitis.* 2011;64(3):174-6.
6. Metin A, Calka O, Behçet L, Yildirim E. Phytodermatitis from *Ranunculus damascenus*. *Contact Dermatitis.* 2001;44(3):183.
7. Hao D-C, He C-N, Shen J, Xiao P-G. Anticancer Chemodiversity of Ranunculaceae Medicinal Plants: Molecular Mechanisms and Functions. *Curr Genomics.* 2017;18(1):39-59.
8. Erbay MŞ, Anıl S, Melikoğlu G. Plants used as painkiller in folk medicine in Turkey-III: Rheumatic pain. *Marmara Pharm J* 2018;22(2):133-41.
9. Li RZ, Ji XJ. [The cytotoxicity and action mechanism of ranunculin in vitro]. *Yao Xue Xue Bao.* 1993;28(5):326-31.
10. Burbach JP. [The blistering effect of buttercups]. *Ned Tijdschr Geneesk.* 1963;107:1128-30.