



Manuscript 1065

The Impact of Social Media on Garlic Burn Incidents: Exploring the Risks of Home Remedies

Niharika Niharika

Sakshi Minocha

Rosaline Mishra

See next page for additional authors

Follow this and additional works at: <https://www.bfopcu.eg.net/journal>



This work is licensed under a [Creative Commons Attribution-NonCommercial-No Derivative Works 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/).

The Impact of Social Media on Garlic Burn Incidents: Exploring the Risks of Home Remedies

Authors

Niharika Niharika, Sakshi Minocha, Rosaline Mishra, Praveen Kumar Gaur, and Navneet Verma

LETTER TO THE EDITOR

The Impact of Social Media on Garlic Burn Incidents: Exploring the Risks of Home Remedies

Niharika Lal ^{a,*}, Sakshi Minocha ^a, Rosaline Mishra ^a, Praveen K. Gaur ^a, Navneet Verma ^b

^a Department of Pharmacy, Metro College of Health Sciences and Research, Greater Noida, Uttar Pradesh 201306, India

^b Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh, India

Abstract

Background: Medicinal plants are increasingly popular, fueled by online endorsements and a growing interest in natural remedies. Garlic (*Allium sativum*), a well-known herbal species, is often touted for its medicinal properties and used to treat various ailments, including coughs and colds in infants. However, despite its popularity, there is a lack of awareness regarding the potential risks associated with topical garlic application, specifically skin burns. This review highlights the potential dangers of using raw garlic topically and advocates for informed decision-making regarding herbal remedies.

Patients and methods: The objective of the present manuscript is to present a case study of an 8-month-old infant who sustained a burn injury after garlic paste was applied to his feet as a home remedy for cold symptoms, highlighting the risks associated with using unverified treatments. This review will delve into existing literature and case reports related to garlic burns. The mechanism of action of allicin, the sulfur-containing compound in garlic responsible for its pungent aroma and potential skin irritation, will be discussed. The review will explore specific cases of garlic burns, particularly those involving infants, to emphasize the vulnerability of this population.

Conclusion: While garlic possesses various medicinal properties, it can also induce skin burns, especially when applied directly to the skin or mucous membranes. This review underscores the need for caution and informed decision-making regarding the use of garlic as a home remedy. The risks associated with topical application, particularly for vulnerable populations like infants, should be emphasized. Further research and public awareness campaigns are crucial to ensure safe and responsible use of herbal remedies.

Keywords: *A. sativum*, Burn, Injury, Natural remedy, Risk

1. Introduction

Nowadays, social media platforms have significantly influenced public perceptions, particularly regarding health benefits and dietary supplements, through the widespread dissemination of related videos and information. From the ancient era to till date global interest in herbal remedies has increased especially after coronavirus disease 2019. Medicinal plants have many beneficial effects on human health. Garlic (*Allium sativum*, Alliaceae) is one of the most famous herbal species, used for various diseases and conditions. The medicinal properties of Garlic are well known for a

long time. Garlic is recommended as a nutritive element in treating various health problems and prolonging human life [1].

As a result, researchers from various disciplines are now directing their efforts towards discovering the medicinal values of garlic on human health. The main interest of researchers in the medicinal values of garlic is its broad-spectrum therapeutic effect with minimal toxicity. Garlic extract has antimicrobial activity against many genera of bacteria, fungi, and viruses. Garlic contains a higher concentration of sulfur compounds which are responsible for its medicinal effects. The chemical constituents of garlic have also been investigated for the treatment

Received 18 January 2024; revised 19 December 2024; accepted 27 December 2024.
Available online 11 February 2025

* Corresponding author at: Department of Pharmacy, Metro College of Health Sciences and Research, Greater Noida, Uttar Pradesh 201308, India.
E-mail address: niharikalal24@gmail.com (N. Lal).

<https://doi.org/10.54634/2090-9101.1065>

2090-9101/© 2025 Cairo university, Faculty of Pharmacy. This is an open access article under the CC-BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

of cardiovascular disease, cancer, diabetes, blood pressure, atherosclerosis, and hyperlipidaemia.

There are over 300 stains of garlic (*A. sativum*) grown all over the world and is one of the earliest known examples of plants used to treat different human health problems. Garlic is cultivated throughout the world; it appears to have originated in central Asia and then spread all over the world. The active component of the garlic is allicin. In ancient times garlic is used in the treatment of rheumatism, dermatitis, abdominal pain, cough, loss of appetite, curing tumors, rabies and snake bite, fever, asthma, epilepsy, and vermifuge [2].

1.1. Contents of garlic

Fresh garlic contains various organosulfur compounds, trace elements and compounds of phenolic and steroidal origin, along with carbohydrates, proteins and fiber. [67] Based on the solubility the contents are divided into two groups. One group is the lipid-soluble allyl sulfur compounds such as diallyl disulfide and diallyl trisulfide, and the other one is the water-soluble compounds g-glutamyl S-allylcysteine group such as S-allylcysteine and S-allylmercaptocysteine. Garlic is characterized by a high content of organosulfur. In the bulb, the sulfur is primarily g-glutamyl peptides and allylcysteine sulfoxides. When the bulb is cut, chopped or squeezed, alliin, the main allylcysteine sulfoxide is metabolized to allicin through the action of alliinase. Allicin is a self-reactive constituent and it is converted readily to more stable compounds such as polysulfides [3].

1.2. Role of garlic in health

Garlic can rightfully be called one of nature's wonderful plants with healing power. It can inhibit and kill bacteria, and fungi, lower (blood pressure, blood cholesterol, and blood sugar), prevent blood clotting, and contain anti-tumor properties. It can also boost the immune system to fight off potential disease and maintain health. It has the ability to stimulate the lymphatic system which expedites the removal of waste products from the body. It is also considered an effective antioxidant to protect cells against free radical damage. It can help to prevent some forms of cancer, heart disease, strokes, and viral infections. Garlic alone can provide us with over two hundred unusual chemicals that have the capability of protecting the human body from a wide variety of diseases. The sulfur containing compounds found in garlic afford the human body with protection by stimulating the production of certain beneficial enzymes [4].

1.3. Garlic: A powerful herb with potential pitfalls

The U.S. Food and Drug Administration has classified garlic as 'Generally regarded as safe (GRAS)' for food and flavoring ingredients, although there are severe consequences of reported acute and chronic toxicity on its excessive consumption. Allicin, a substance abundant in garlic, when consumed in large doses, can be hazardous to the liver. Additionally, the abundance of different sulfur derivatives in essential oils may worsen its harmful effects such as throat and mouth burning, stomach ulcers, nausea, vomiting, erythematous mucosa which is characterized by redness and inflammation in the gas mucosa layer as well as hyphaemia, bleeding gums and potentially irreversible eyesight loss. However, despite these potential benefits, consuming garlic inaccurately or influenced by social media hype can lead to various side effects.

In today's scenario people are highly inspired by social media contents, especially those dealings with beauty and infant health care. Rumours, misinformation, disinformation, and mal-information are common challenges confronting media of all types. It is, however, worse in the case of digital media, especially on social media platforms. Ease of access and use, speed of information diffusion, and difficulty in correcting false information make control of undesirable information a horrid task [1].

Herbal medicine, originating from ancient cultures, uses plants to treat diseases and improve health, with potent ingredients similar to pharmaceutical drugs, which are man-made versions. Herbal treatments essentially comprise plant parts or raw plant extracts with many ingredients that are generally thought to function in concert with one another [2]. Many reasons have been given for the recent rise in interest in herbal remedies, some of which are (i) conflicting claims about the effectiveness or efficacy of plant medicines, (ii) consumer preference for natural therapies and increased interest in alternative medicines, (iii) false beliefs that herbal products are superior to manufactured products (iv) dissatisfaction with orthodox pharmaceutical results and the belief that herbal medicines could be useful in treating some diseases where traditional therapies and medications have proven to be ineffective or inadequate; (v) the high cost and side effects of most modern drugs; (vi) advancements in science and technology leading to improvements in the quality, efficacy, and safety of herbal medicines; (vii) patients' perception that their doctors have not accurately diagnosed their condition, leading them to believe that herbal remedies are an additional option; and (viii) a trend towards self-medication [3].

Many people are influenced with the utilization of herbal medicine to treat disease without knowing the consequences. It is crucial not to self-diagnose health conditions and to use any drug under the supervision of a qualified practitioner. In order to promote normal or healthy growth and development, children are urged to utilize herbs for their nutritional benefits; nevertheless, many choose herbal medications using a deductive method based on anecdotal evidence, such as 'it worked for my friend or relative.' Additionally, due to the impact of higher degree of spiritual consciousness, a growing number of people are inclined to embrace the therapeutic benefits of a treatment that is based more on faith or intuition than on scientific explanation [4,5].

A. sativum, or garlic, has long been utilized in food preparation and medicine. It is said to contain antibacterial and antiviral qualities that ease the common cold, among other positive effects. The use of supplements containing garlic is common. Raw garlic and commercial formulations including powders, oils, and aged extracts are examples of garlic cures. It is uncertain how garlic works as an antiviral and antibacterial agent [6].

Nonetheless, its derivatives including sulphur might have an impact. On the other hand, ajoene, an alliin derivative with antiplatelet and antibacterial properties in vitro, could be the cause of garlic's effects. Alliin is created when raw garlic is crushed. Although alliin has shown antibacterial qualities in vitro, other research indicates that it is an unstable substance that does not enter the bloodstream after consumption. According to estimates, each gram of fresh garlic weighs between 4.38 and 4.65 mg of alliin; therefore, one fresh clove of garlic, weighing around 4 g, has between 17.52 and 18.60 mg of alliin [7].

2. Case synopsis

This case details an 8-month-old infant who suffered a burn after his mother applied garlic paste to his feet as a remedy for his cold and cough. The infant had been experiencing congestion and a cold, and his mother, having read on social media that garlic might provide relief without medication, decided to try it. She crushed four medium-sized garlic cloves and applied the paste to his feet, covering it with a bandage for 5 h. When she removed the bandage, the feet appeared unaffected, but the baby cried continuously throughout the night, which she thought might be due to hunger, congestion, or a cough. The next morning, the mother noticed that the area around the infant's feet had darkened and seemed irritated, which she



Fig. 1. Garlic Burn in infant after applying raw garlic bandage.

initially believed to be contact dermatitis. As the irritation progressed, it developed into a large blister filled with fluid. Upon examination in the outpatient department, the pediatrician diagnosed it as a 'garlic burn' based on the clinical history and findings. The infant had a prominent circular contact dermatitis on the left foot with a large blister (Fig. 1). The mother was advised to clean the area with isotonic saline twice daily and to apply a thin layer of Bacitracin topical antibiotic ointment.

3. Discussion

Naturopathic doctors often recommend garlic, or *A. sativum*, for treating a range of conditions due to its documented antifungal, antiparasitic, antiviral, and antibacterial properties. Garlic can be used both topically and orally. However, fresh, crushed garlic can cause significant skin irritation and adverse reactions. It may lead to delayed-type hypersensitivity reactions and irritating contact dermatitis, as seen in this case. Allergic contact dermatitis from garlic is commonly observed among housewives and chefs with hand dermatitis. Nonetheless, reports of irritating contact dermatitis from garlic causing burns are rare [8]. According to studies by Tomo et al., garlic has been widely used as a medicinal plant across various cultures

throughout history to treat a range of ailments. Despite its long history of use, garlic has the potential to cause chemical burns to the skin and mucous membranes. This report describes a case of a garlic burn on the palate of a 57-year-old woman who applied garlic to alleviate pain from trigeminal neuralgia. The case highlights garlic's potential to cause chemical burns to the oral mucosa and serves as a warning to oral health professionals about the risks of inappropriate self-treatment methods [9]. In another instance, Vargo DMD documented a 49-year-old man who sought treatment for maxillary tooth pain and applied crushed raw garlic topically, resulting in an oral mucosal burn of the maxillary vestibule. The man hoped this remedy would alleviate his dental pain, but instead, he experienced localized tissue necrosis [10].

Sharp and colleagues studied the case of a 45-year-old woman who developed painful blisters and redness on her left big toe after applying raw garlic for 4 h daily over four weeks to treat a fungal nail infection. Examination revealed a swollen, erythematous toe with partial thickness burns and a yellow, slightly lifted toenail indicating onychomycosis. The skin had an abnormal pH of 9. Treatment involved irrigating the toe to normalize the pH and de-roofing the blisters. This case highlights the risk of chemical burns from prolonged use of raw garlic as a home remedy [11]. Parish and colleagues describe a case where a child suffered partial thickness burns from a garlic-petroleum jelly plaster, applied based on a naturopathic doctor's advice. Despite various studies on garlic's medicinal properties, 'garlic burns' had not previously been documented in the literature. This case underscores the need for pediatricians to be aware of the potential adverse effects of plasters, poultices, and other 'natural' remedies, especially in communities where naturopathic medicine is common [12]. Karabacak reported a case of a 24-year-old woman who, after developing a sore throat, applied raw, crushed garlic to her neck for nearly 5 h. She presented with an erythematous, burning, and itchy lesion around her neck. A dermatological examination revealed vesicular lesions, patchy squamous lesions, and an erythematous area with eruption in the submandibular region. The diagnosis of garlic burn was confirmed based on her medical history and physical examination [13].

In a review by Hitl and colleagues, burn injuries resulting from the application of raw garlic are discussed. A search through PubMed, Google Scholar, and ResearchGate revealed 32 articles involving 39 patients. The review provides a detailed examination of patient demographics, reasons for using garlic, application methods, burn

descriptions, and treatments. Most cases involved second-degree burns, though some led to necrotic tissue formation. The legs were the most frequently affected area. Treatment for garlic burns was primarily symptomatic, with various medications used. Although not commonly anticipated, garlic should be considered a potential cause of burns by healthcare providers, and patients should be advised against applying fresh garlic to the skin or mucous membranes [14]. Other case studies are incorporated in Table 1.

The potential of garlic to trigger allergic reactions is well-documented, with several types of reactions previously mentioned. Allergic contact dermatitis is commonly observed as an occupational allergy among cooks, housewives, and others frequently exposed to garlic. The main allergens in garlic include diallyldisulfide, allylpropyldisulfide, and allicin. These compounds are electrophilic and can interact with nucleophilic groups in proteins, potentially forming hapten-protein conjugates that act as allergens. Additionally, the enzyme allinase may also serve as a potent allergen [20].

In overall prospect, there are two major negative effects of raw garlic on the skin. It can burn someone chemically directly and produce a type IV hypersensitivity reaction in people who are already sensitized, which can lead to contact dermatitis. These processes involve sulfur-containing chemicals; diallyl disulfide is believed to be the primary causal component.

In these reactions, monosulfides, disulfides, and trisulfides are implicated; diallyl disulfide has the highest potential for sensitization. Contact dermatitis is also brought on by allicin, an oxidized product of diallyl disulfide. The ingredients cause acantholysis, which results in the production of blisters, necrosis, and skin sloughing. Allicin disrupts intercellular connections and keratinocytes via dysregulating the metabolism of cysteine-containing proteins, which ultimately results in coagulative necrosis [21].

Naturopathic doctors often recommend garlic, or *A. sativum*, for treating a range of conditions due to its documented antifungal, antiparasitic, antiviral, and antibacterial properties [22]. Garlic can be used both topically and orally. However, fresh, crushed garlic can cause significant skin irritation and adverse reactions. It may lead to delayed-type hypersensitivity reactions and irritating contact dermatitis, as seen in this case. Allergic contact dermatitis from garlic is commonly observed among housewives and chefs with hand dermatitis. Nonetheless, reports of irritating contact dermatitis from garlic causing burns are rare [23].

Table 1. Reported Case incidents suggesting developed Adverse events caused by the utilization of raw garlic.

Sno.	Case Study	Side Effects	Treatment	References
1.	A case study details an 80-year-old woman who applied crushed garlic to her face to alleviate pain from trigeminal neuralgia, resulting in a second-degree chemical burn	Serious allergic reactions, Itching, redness	The successful treatment of the patient's burn and pain with glycerol injections demonstrates the effectiveness of conventional medical interventions over unverified home remedies	[15]
2.	A 24-year-old woman experienced an unusual garlic burn on her neck after applying crushed raw garlic for 5 h to alleviate a sore throat. The dermatological examination revealed erythematous lesions, consistent with a chemical burn caused by garlic	Erythematous demarcated area with eruption, patchy squamous and vesicular lesions	Treatment included topical antibiotics, steroids, and cool compresses, leading to complete healing within a week	[16]
3.	A 20-year-old Latina patient developed irritant contact dermatitis, referred to as 'garlic burn,' after her mother applied raw garlic to her biopsy sites, believing it would aid healing	Pain and vesiculation in the areas with subsequent desquamation and postinflammatory hyperpigmentation	Treatment included topical antibiotics, steroids, and cool compresses, leading to complete healing within a week	[17]
4.	A case study of a 55-year-old woman who developed a second-degree chemical burn from crushed garlic over the medial side of her left knee for treating her chronic pain caused by an old fracture. She wrapped the garlic paste with plastic bandage and wait for 7 h illustrates the risks	rush and blisters, vesiculobullous erythematous eruption as large as 10*10 cm at the anteromedial side of her left knee	Effective treatment for garlic burns involves using sterile dressings and topical medications, with a focus on preventing infection and promoting healing	[18]
5.	A 65-year-old female who suffered a second-degree skin burn on her lower leg after applying crushed garlic for 15 min to treat an insect bite	The skin in the area became very red, began to steam and filled with fluid, forming a tense blister. In a short time, the skin of the blister broke open and an extensive ulcer which slightly moistened with a transparent yellowish liquid was formed	Wound care involved cleaning and antibiotic therapy. Skin healed completely after 10 days	[19]

The potential of garlic to trigger allergic reactions is well-documented, with several types of reactions previously mentioned. Allergic contact dermatitis is commonly observed as an occupational allergy among cooks, housewives, and others frequently exposed to garlic [11]. The main allergens in garlic include diallyldisulfide, allylpropylsulfide, and allicin. These compounds are electrophilic and can interact with nucleophilic groups in proteins, potentially forming hapten-protein conjugates that act as allergens. Additionally, the enzyme allinase may also serve as a potent allergen.

The severity of garlic burns is influenced by factors such as the amount of garlic used, duration of exposure, presence of pre-existing skin conditions, and the skin's sensitivity. Infants are particularly susceptible to these reactions due to their more delicate stratum corneum. Unlike adults, who may take 10–12 h to show blistering and irritation,

infants can experience necrotic changes within just 6–8 h of skin contact. When garlic is applied under occlusion, the concentration of irritating chemicals increases, leading to more intense irritation and allergic reactions [24].

Treatment typically involves oral antibiotics to address any secondary bacterial infections, along with topical corticosteroids to reduce inflammation. Severe reactions may require oral corticosteroids. Generally, improvement is seen within two weeks. Given the potential for contact dermatitis, as illustrated by our patient, and the lack of evidence supporting the effectiveness of garlic as a home remedy, it is advisable to discourage the use of garlic in any topical form. Applying raw garlic to the skin or mucous membranes should be avoided. This article strongly condemns the use of herbal treatments, particularly those promoted on social media, without verifying their authenticity and

safety. The influence of unverified information can lead to serious consequences, as demonstrated in the case study discussed. This revision emphasizes the importance of ensuring the credibility of herbal treatments and highlights the risks associated with following social media trends without proper research [25].

3.1. Conclusion

Tragically, in occlusive circumstances, fresh garlic can be a strong irritant. This is particularly valid in the crushed form. Allergy-induced contact dermatitis, typically an epidermal reaction, is one of many potential unpleasant effects. The main allergens are allicin, allyl propyl disulfide, and diallyl disulfide. Each case is unique due to the significant variations in the amount of garlic used, the specifics of application, and the peculiarities of the patients. It typically results in second-degree burns, which are minor injuries that heal with conventional care. However, the treating physician ought to be understand that garlic may be a causal agent, in order to properly diagnose and treat the problem. In order to prevent injuries, patients should be informed that 'herbal' does not equate to 'safe,' and they should be cautioned against consuming raw garlic in excess.

Funding

No funding is supported.

Informed consent statement

Consent taken.

Data availability statement

Data are available from the corresponding author with the permission of the head of the department. The data that support the findings of this study are available from the corresponding author (niharikalal24@gmail.com) upon reasonable request.

Conflict of interest

There are no conflicts of interest.

References

- [1] Grover P, Kar A, Dwivedi Y. The evolution of social media influence - a literature review and research agenda. *Int J Inf Manag Data Insights* 2022;2:100–16.
- [2] Adaki S, Adak R, Shah K, Karagir A. Garlic: review of literature. *Indian J Cancer* 2014;51:577–81.
- [3] Singh R, Kumar P, Kumar N, Singh D. Garlic (*Allium sativum*): pharmaceutical uses for human health. *Int J Pharma Sci Res* 2020;11:4214–28.
- [4] Rana SV, Pal R, Vaiphei K, Sharma SK, Ola RP. Garlic in health and disease. *Nutr Res Rev* 2011;24:60–71.
- [5] Verma T, Aggarwal A, Dey P, Chauhan AK, Rashid S, Chen KT. Medicinal and therapeutic properties of garlic, garlic essential oil, and garlic-based snack food: An updated review. *Front Nutr.* 2023 Feb 16;10:1120377.
- [7] Niharika L, Mehrabi R. Verma navneet formulation and standardization of anti-acne herbal foaming face wash using curcuma longa along with Aloe vera. *Rosa centifolia* and *Citrus sinensis*. *Drug Deliv Lett* 2021;11:335–46.
- [8] Ventola CL. Social media and health care professionals: benefits, risks, and best practices. *P T* 2014;39:491–520.
- [9] Tomo S, Santos IDS, Cruz TMD, Miyahara GI, Simonato LE. Garlic burn trauma of the oral mucosa in a patient with trigeminal neuralgia: a case report. *Dent Traumatol* 2022;38:340–4.
- [10] Vargo R, Blake M, Anitha P, Prasad Joanne L. Garlic burn of the oral mucosa: a case report and review of self-treatment chemical burns. *J Am Dent Assoc* 2017;148:767–71.
- [11] Sharp O, Waseem S, Wong KY. A garlic burn. *BMJ Case Rep* 2018 Jul 3;2018:226–7. <https://doi.org/10.1136/bcr-2018-226027>. PMID: 29973413; PMCID: PMC6040548.
- [12] Parish RA, McIntire S, Meimbach DM. Garlic burns: a naturopathic remedy gone awry. *Pediatr Emerg Care* 1987;3:258–60.
- [13] Karabacak E, Aydön E, Kutlu A, Dogan B. An unusual garlic burn occurring on an unexpected area. *BMJ Case Rep* 2014:203–85.
- [14] Hitl M, Kladar N, Gavarić N, Srdnović Čonić B, Ožin B. Garlic burn injuries- a systematic review of reported cases. *Am J Emerg Med* 2021;44:5–10.
- [15] Huseyin Yilmaz H. Garlic burn in a patient with trigeminal neuralgia: a case report. *Eur J Dermatol* 2010;4:88–90.
- [16] Karabacak E, Kutlu A, Aydin E, Ozturk S. Hypersensitivity to lansoprazole with tolerance to other proton pump inhibitors: does cross-reactivity between proton pump inhibitors really exist? *Allergol Immunopathol (Madr)* 2013;41:136–7.
- [17] Lee Hall E. Herbalism in wound care: a case of garlic burn. *JAAD Case Reports* 2021;9:100–1.
- [18] Akdeniz YA, Kusku Kiyak S, Gülbacō A, İkizceli I. Garlic: friend or enemy? *Phnx Med J* 2019;1:41–3.
- [19] Georgieva F, Stoyanova ZH. Skin burn after applying garlic occlusion. A case report. *Int J Health Med Res* 2833-213X 2023;2:94–5.
- [20] Lembo G, Balato N, Patruno C, Auricchio L, Ayala F. Allergic contact dermatitis due to garlic (*Allium sativum*). *Contact Dermatitis* 1991;25:330–1.
- [21] Dietz DM, Varcelotti JR, Stahlfeld KR. Garlic burns: a not-so-rare complication of A naturopathic remedy? *Burns* 2004;30:612–3.
- [22] Borrelli F, Capasso R, Izzo AA. Garlic (*Alliumsativum* L.): adverse effects and drug interactions in humans. *Mol Nutr Food Res* 2007;51:1386–97.
- [23] Xu S, Heller M, Wu PA, Nambudiri VE. Chemical burn caused by topical application of garlic under occlusion. *Dermatol Online J* 2014;20:21261.
- [24] Vargo RJ, Warner BM, Potluri A, Prasad JL. Garlic burn of the oral mucosa: a case report and review of self-treatment chemical burns. *J Am Dent Assoc* 2017;148:767–71.
- [25] Dietz DM, Varcelotti JR, Stahlfeld KR. Garlic burns: a not-so-rare complication of a naturopathic remedy? *Burns* 2004;30:612–3.