

TABLE 1. Topical Drugs Containing Ketoprofen in Italy

Artrosilene gel
Fastum gel
Ibifen gel
Hiruflog gel
Keplat medicated patch
Ketofarm gel
Ketopropene Almus gel
Ketopropene Eurogenerici gel
Ketopropene Ratiopharm gel
Ketopropene Sandoz cream
Ketopropene Teva gel
Lasoartro cream
Lasonil gel
Liotondol gel
OKI gel
Orudis gel and cream

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REFERENCES

1. Wahlberg JE. Patch testing. In: Rycroft RJG, Menné T, Frosch PJ, Benezra C, eds. *Textbook of Contact Dermatitis*. Berlin, Germany: Springer; 1992:239–268.
2. Hindsén M, Zimerson E, Bruze M. Photoallergic contact dermatitis from ketoprofen in southern Sweden. *Contact Dermatitis* 2006;54:150–157.
3. Devleeschouwer V, Roelands R, Garmyn M, et al. Allergic and photoallergic contact dermatitis from ketoprofen: results of (photo) patch testing and follow-up of 42 patients. *Contact Dermatitis* 2008;58:159–166.

4. Foti C, Cassano N, Vena GA, et al. Photodermatitis caused by oral ketoprofen: two case reports. *Contact Dermatitis* 2011;64:181–183.

Comparison of allergEAZE Allergens to Chemotechnique Diagnostics Allergens in the Evaluation of Contact Allergy

To the Editor:

Patch testing is the criterion standard method for diagnosing allergic contact dermatitis. Many dermatologists use a modified North American Contact Dermatitis Group (NACDG) patch test series in practice. This series has been shown to identify the clinically relevant allergic reactions in approximately 65% of patients tested.^{1,2} In the past, Chemotechnique Diagnostics (Vellinge, Sweden) supplied the majority of allergens used for extended series patch testing. More recently in 2007, allergEAZE allergens, manufactured by Brial Allergen GmbH (Greven, Germany), have become available as another option.

To evaluate the efficacy and reproducibility of allergEAZE allergens in comparison to those from Chemotechnique Diagnostics, patients presenting for the diagnosis and evaluation of allergic contact dermatitis were tested with the top 20 allergens, determined by the NACDG 2003–2004 study period,³ produced by both Chemotechnique Diagnostics and allergEAZE (Table 1).

Twenty-one patients were identified for the study, which required 3 visits for completion of the patch testing. All of the allergens used were within their expiration dates and were stored at room temperature. Both series of allergens were kept in the same location. Three patients were not able to complete the trial. Measurements of skin reactivity were documented for the second and third visits. The patch test readings were performed by 2 of the authors (L.M.G. and R.R.B.). Allergic patch test reactions were evaluated as +, ++, or +++ based on the criteria described by the NACDG.¹ All reactions of +, ++, or +++ on the final reading were considered positive. A detailed report of the noted reactions is presented in Table 2. Results from the 18 remaining patients were compared using Cohen κ coefficient to evaluate for agreement between the 2 series. Cohen κ coefficient is a statistical way of quantifying interrater agreement, and the formula is as follows:

$$\kappa = \frac{\text{observed percentage of agreement} - \text{expected percentage of agreement}}{1 - \text{expected percentage of agreement}}$$

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The allergEAZE Allergens were donated from the company for the purpose of this study.

The authors have conflicts of interest to declare.

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TABLE 1. Positive Results of Patch Testing and Agreement From the 2 Series, allergEAZE and Chemotechnique

Positive Results	allergEAZE	Chemotechnique	Agreement (κ Value)
Nickel sulfate (5% pet)	5	8	Moderate (0.42)
Neomycin (20% pet)	1	1	Almost perfect (1.0)
Balsam of Peru (25% pet)	0	0	—
Fragrance mix (8% pet)	1	1	Almost perfect (1.0)
Quaternium-15 (2% pet)	0	4	Slight (0.0)
Sodium gold thiosulfate (0.5% pet)	3	4	Moderate (0.47)
Formaldehyde (1% aq)	1	0	Slight (0.0)
Cobalt chloride (1% pet)	0	2	Slight (0.0)
Bacitracin (20% pet)	1	1	Poor* (−0.06)
Methyldibromoglutaronitrile/phenoxyethanol (2% pet)	0	0	—
<i>p</i> -Phenylenediamine (1% pet)	0	0	—
Thiuram mix (1% pet)	0	1	Slight (0.0)
Potassium dichromate (0.25% pet)	0	0	—
Carba mix (3% pet)	1	1	Almost perfect (1.0)
Diazolidinylurea (2% pet)	0	0	—
Propylene glycol (30% aq)	0	0	—
Imidazolindinylurea (2% pet)	0	0	—
Colophony (20% pet)	0	0	—
Tixocortol-21-pivalate (1% pet)	0	0	—
Ethylenediamine dihydrochloride (1% pet)	0	0	—

Dash (—) indicates all negative results, no κ value available.

*Agreement is poor as positive reactions noted on 2 different subjects.

κ Values range from −1, indicating perfect disagreement, to 0 indicating that the agreement is the same as would be expected by chance, to +1 indicating perfect agreement between any 2 tests.⁴ Further studies suggest the following guidelines when interpreting a κ value, with less than zero indicating a poor agreement; zero to 0.2, slight agreement; 0.21 to 0.40, fair agreement; 0.41 to 0.60, moderate agreement; 0.61 to 0.80, substantial agreement; and 0.81 to 1.00, almost perfect agreement.⁵

Although this is a small series, to the authors' knowledge, it is the only comparison of these 2 commercially available allergens. Particularly of note is the disagreement in reactions to quaternium-15, nickel, and cobalt. The quaternium-15 agreement is considered slight because of the overall low

numbers in the study. Both companies report the same concentration of these 3 allergens in their products. However, more reactions to them were noted to the Chemotechnique series. This disagreement may be due to the discordance inherent in the patch test process or to the location of the patch tests on the back. A larger study to examine this lack of agreement is certainly warranted. For the allergens to which no reaction was detected, a κ value cannot be calculated, and agreement cannot be adequately determined.

Although both series are valuable in the diagnosis of allergic contact dermatitis in a patient, further analysis with a larger patient population size is needed to definitively determine relative efficacy of these 2 sets of allergens.

TABLE 2. Magnitude of Positive Allergic Reactions

Allergens	Chemotechnique			allergEAZE		
	+	++	+++	+	++	+++
Nickel sulfate (5% pet)	5	3	0	2	2	1
Neomycin (20% pet)	1	0	0	0	1	0
Fragrance mix (8% pet)	1	0	0	1	0	0
Quaternium-15 (2% pet)	3	0	1	0	0	0
Sodium gold thiosulfate (0.5% pet)	2	1	1	3	0	0
Formaldehyde (1% aq)	0	0	0	1	0	0
Cobalt chloride (1% pet)	2	0	0	0	0	0
Bacitracin (20% pet)	0	1	0	1	0	0
Thiuram mix (1% pet)	1	0	0	0	0	0
Carba mix (3% pet)	0	1	0	1	0	0

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REFERENCES

1. Zug KA, Warshaw EM, Fowler JF Jr, et al. Patch-test results of the North American Contact Dermatitis Group 2005-2006. *Dermatitis* 2009;20:149-160.
2. Cohen DE, Shaline R, Brancaccio RR. Use of the North American Contact Dermatitis Group Standard 65-Allergen Series alone in the evaluation of allergic contact dermatitis: a series of 794 patients. *Dermatitis* 2008;19:137-141.
3. Warshaw EM, Belsito DV, DeLeo VA, et al. North American Contact Dermatitis Group patch-test results, 2003-2004 study period. *Dermatitis* 2008;19:129-136.
4. Jekel JF, Katz DL, Elmore JG, et al. Kappa test ratio. In: *Epidemiology, Biostatistics, and Preventive Medicine*. 3rd ed. Philadelphia, PA: Saunders Elsevier; 2007:114-115.
5. Doumit J, Pratt M. Comparative Study of Iq-ultra and Finn chambers test methodologies in detecting 10 common standard allergens that cause allergic contact dermatitis. *J Cutan Med Surg* 2012;16:18-22.

Allergic Contact Dermatitis With Contact Urticaria to Colophony From an Alternative Remedy

To the Editor:

Colophony is a yellowish residue appearing after distillation of oleoresin obtained from plants belonging to Pinaceae (mainly *Pinus* genus). It is a common cause of sensitization. Indeed, colophony causes allergic contact dermatitis, occupational asthma, rhinitis and eye irritation, and perhaps headache and allergic alveolitis.¹

We report a patient who developed a severe dermatitis after the application of an ointment composed of colophony.

A 29-year-old white woman was referred to the Dermatology Department at University of Palermo (Italy) in April 2009 with a 10-day history of a generalized, erythematous, urticarial eruption over the body and an eczematous dermatitis on the right wrist. There was no angioedema or mucosal involvement. She otherwise was fit and well. Her personal history was negative for allergic rhinitis, asthma,

allergy, and hypersensitivity to particular foods or drugs. There was no history of fever, arthralgia, or insect bites before onset of symptoms. There was no similar presentation in the past. She had no pets and had not traveled recently.

On further questioning, the patient complained about pruritus and described an erythematous, maculopapular eruption that had appeared on the dorsal region of right wrist. The initial skin eruption gradually progressed to involve the trunk and limbs and became intense erythematous and vesicular on the wrist (Fig. 1). The patient was not on any other systemic or topical formulation, but she noted that the eruption appeared approximately 12 days after skin contact for a couple of times with an ointment composed of colophony, olive oil, and beeswax. This remedy was acquired at an herbalist's store and was advised by a friend for the relief of the symptoms of a tendinitis on the right wrist (the only site where she had applied the ointment).

The ointment was promptly withdrawn. The patient was commenced on oral antihistamines, corticosteroids, and emollients. On review 15 days later, complete remission of the skin lesions was achieved.

Because the diagnosis was compatible with allergic contact dermatitis, after complete resolution of symptoms, patch testing was carried out with the Italian Society of Allergological, Occupational and Environmental Dermatology standard series with readings interpreted as recommended by the International Contact Dermatitis Research Group. The Italian Society of Allergological, Occupational and Environmental Dermatology has grouped a large number of haptens most frequently responsible for contact dermatitis. This series includes colophony (20% petrolatum). The test substances, provided in a preparation suitable for patch testing, were applied to the healthy skin of the back with Finn Chambers on Scanpor tape. Patch test readings on day 2 and day 3 showed sensitization to colophony (+++). Patch test results with olive oil (50% petrolatum) and beeswax (30% petrolatum) were negative. Patch testing with the patient's own sample was performed, showing positive result (+++).

Colophony is also known as *colophonium* or *rosin*. There are 3 major types, gum, wood, and tall oil, distinguished by their different methods of recovery. Gum rosin, the most common form, is tapped from the sap of living trees, wood rosin is extracted from pine stumps, and tall oil rosin is obtained from the black liquid generated during pulp paper processing as a by-product.¹ Colophony is a complex mixture composed of approximately 90% resin acids, most of which is abietic acid. Other resin acids include dehydroabietic, neoabietic, pimaric, isopimaric, sandarapimaric, and palustric acids.² However, the constituents vary with species extracted, climate, extraction, and storing method.¹ The principal sensitizer in colophony is abietic acid.²

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