

# Botanical Briefs: Giant Hogweed— *Heracleum mantegazzianum* Sommier & Levier

MAJ Thomas W. McGovern, MC, USA

Theodore M. Barkley, PhD

## Clinical Importance

*Heracleum mantegazzianum* causes phytophotodermatitis that has been mistaken for child abuse, as in a 13-month-old girl with red finger marks on both shoulders. Her mother had cut down giant hogweed in her garden that day and subsequently laid her hands on her daughter.<sup>1</sup> Those affected most often are sport fishermen, bathers, and chil-

dren who use the hollow stems as a telescope, pea-shooter, or whistle.

## Cutaneous Manifestations

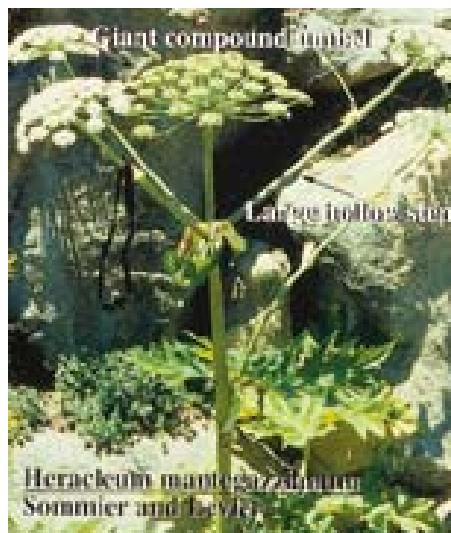
Phototoxic reactions can occur from ultraviolet A (UVA) exposure only 15 minutes after contact with topical furocoumarins, but UVA sensitivity peaks 30 to 120 minutes after contact.<sup>2</sup> Bizarre configurations of erythema, edema, and bullae appear after a latent period of roughly 24 hours. The inflammatory reaction peaks at 72 hours. These painful, nonpruritic reactions are more often seen in middle to late summer when psoralen concentrations are highest in the offending plants and more skin is exposed to direct sunlight. Wet skin, sweating, and heat enhance the phototoxic response.<sup>3</sup> To avoid misdiagnosis as poison ivy dermatitis, physicians must note that the initial erythematous and bullous reaction only occurs in sun-exposed areas. Hyperpigmentation follows 1 to 2 weeks after UVA exposure and lasts months to years. Interestingly, areas affected by phototoxic reactions may remain hypersensitive to UVA light for years.

The opinions and assertions contained herein are those of the authors and are not to be considered as reflecting the views of the Department of the Army or the Department of Defense.

Dr. McGovern is in private practice in Grand Rapids, Michigan. Dr. Barkley is with the Division of Biology, Kansas State University, Manhattan, Kansas.

REPRINT REQUESTS to 4100 Lake Drive SE, Grand Rapids, Michigan 49546 (Dr. McGovern).

**FIGURE 1.** *Heracleum mantegazzianum* growing about 2 m tall in the Denver Botanical Gardens. Sunglasses hanging from plant are for size comparison (September 1995).



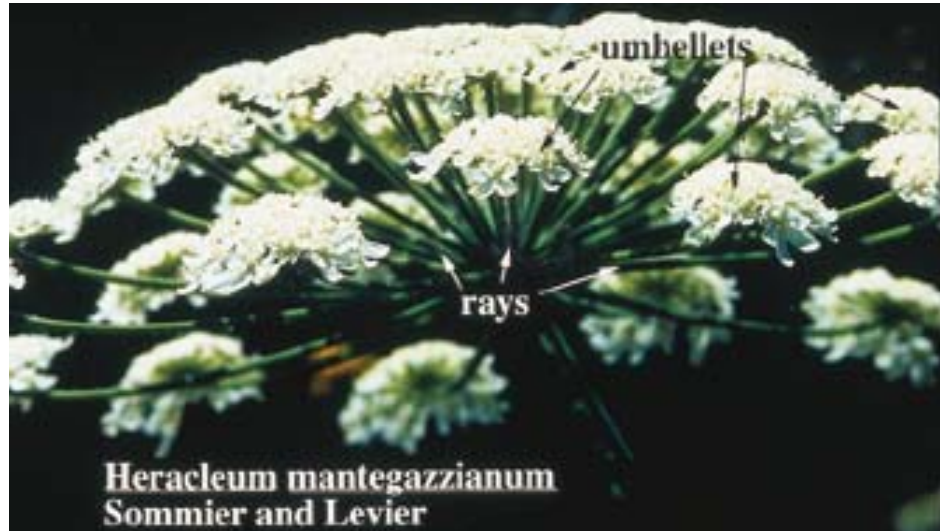
## Family

The family names Umbelliferae and Apiaceae are both acceptable according to the International Code of Botanical Nomenclature.

## Distribution

This species is a native of the Caucasus and Kamschatka peninsula and has been

**FIGURE 2.** Giant compound umbel of *Heracleum mantegazzianum* approximately 60 cm across. Pedicels (small rays) arise from the end of each ray, and each pedicel supports a single flower of an umbellet. These are only visible in out-of-focus portions of the photograph (Denver Botanical Gardens, September 1995).



introduced into horticulture. Naturalization and spread of the plant has occurred in central Europe, the United Kingdom, the United States, and Canada.

#### **Dermatitis-Inducing Plant Parts**

The black seeds, leaves, and roots contain the most potent photosensitizers.<sup>4</sup>

#### **Nomenclature**

As with most weedy plants, the taxonomy is complicated. Some botanists recognize several segregate species, but here we take a broad and inclusive view and recognize but a single variable species. “Heracleum” probably derives from “Hercules,” while “mantegazzianum” comes from Paolo Mantegazza, an Italian man-of-letters of the mid-19th century.

#### **Identifying Features/Plant Facts**

The plant was introduced to Kew Gardens, England, for ornamental purposes, but has now become a weed that is usually found in wet, shady sites. The plant can grow nearly 4 m tall during its growing season and has large hollow stems (Figure 1). The giant umbels can grow to 1 m in diameter (Figure 2). Cutting plants for the intended purpose of eradication may result in dispersal since the dried stems and flower heads readily float downstream.

Members of the Umbelliferae are easy to recognize. Numerous small flowers are held in an “umbel” (a cluster of flowers on stalks of roughly equal length arising from a single point). Often, the flower

heads are made up of many small umbels to make “compound umbels,” as seen in *H. mantegazzianum* (Figure 2). The fruits are flattened, with a thickened central part and prominent thin wings on each side; they have a distinctive parsley-like odor when crushed. The flower heads are sheathed at the base by one or more leaf-like bracts. Moreover, the leaves are large and deeply dissected, while the petioles are basally expanded and clasping the stem. Close relatives of giant hogweed include carrots and parsley.

#### **Phototoxic Agents**

Because phytophotodermatitis is non-immunologic, it may be elicited in anybody given sufficient furocoumarins and UVA. The plant contains 5-methoxypsoralen and 8-methoxypsoralen and acts as one of the main causes of phytophotodermatitis in the United Kingdom and United States.

*Acknowledgment*—Graphics assistance from the Medical Photography Department, Wilford Hall Medical Center, Lackland Air Force Base, Texas.

#### **REFERENCES**

1. Epstein WL: Plant-induced dermatitis. *Ann Emerg Med* 16: 950-955, 1987.
2. Kavli G, Volden G: Phytophotodermatitis. *Photodermatol* 1: 65-75, 1984.
3. Pathak MA: Phytophotodermatitis. *Clin Dermatol* 4: 102-121, 1986.
4. Lovell CR: Current topics in plant dermatitis. *Semin Dermatol* 15: 113-121, 1996.