

orchards, and arable land in neutral and acid soils.

This weed interferes with the growth of other plants (allelopathic potential) resulting from the release of phytotoxic substances such as ferulic, caffeic, vanillic, chlorogenic, *p*-hydroxybenzoic acids, parthenin, ambrosin, and coronopilin, which inhibit the germination and growth of several crop plants (6). Because it has no economic value, efforts have been made to use parthenium as a green leaf manure, as a biopesticide, as a compost for agricultural purposes, and as an additive with cattle manure in biogas production (7). Compost obtained from parthenium can be used for agricultural purposes and as manure. This is likely to get widely dispersed, get airborne, and aggravate parthenium dermatitis if the allergenicity is retained.

Parthenium compost was obtained from the Department of Agronomy, Tamil Nadu Agricultural University, Coimbatore. Compost made by 2 methods, anaerobic and aerobic, was collected. The composting procedure was carried out for 90 days for each of the methods. Samples were obtained on D45 and D90. The 2 methods of composting are described below.

Method 1: Parthenium Vermicompost (Aerobic)

Parthenium plants were collected before flowering and cut with knife into small pieces manually. The chopped parthenium plants were spread on the uniformly levelled floor under shade. This was arranged in 6-m² area (3 × 2 m) with 90 cm height. Above this layer, 10% cow dung slurry was uniformly sprinkled. The next layer of chopped plant material was spread over the above layer. This procedure was followed up to 1 m height.

Watering was done once in 2 days and whenever the heap was found to be dry. The compost heap was turned after 20 days for better aeration and uniform decomposition of chopped material. After 30 days of composting, earthworms were released into the compost heap by making small openings. For 1 tonne of green material, 500 earthworms were used. Hydration and aeration of the compost heap were ensured by making holes on the sides of the heap into which polyvinyl chloride pipes were inserted. The well-decomposed parthenium compost was ready after 90 days of composting.

Retention of allergic potential of parthenium following composting

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Parthenium hysterophorus is known to cause allergic contact dermatitis (1). Changing clinical patterns of the dermatitis are reported (2, 3). Recently, the role of type I (immediate) and type III (Arthus phenomenon) has been postulated (4, 5). This weed, a native of tropical America, is wide spread in grasslands, fruit tree

Method 2: Parthenium Compost – Pit Method (Anaerobic)

Fresh parthenium plants were collected from the infested area and chopped into pieces. A pit size of 6 m² (3 × 2 m) with 90 cm height was dug out and the chopped parthenium plants were spread inside the pit up to 15 cm height. Above this layer, fresh cow dung slurry was sprinkled and the next layer of parthenium plants was spread to a height of 15 cm. Similarly, 6 layers of parthenium were spread inside the pit. The top portion of the pit was covered with mud to maintain anaerobic condition. Watering was done once in 3 days. Samples for patch testing were obtained on D45 and D90.

The compost was subjected to an extraction procedure (8). A 1% concentration of the extract in pet. was used for patch testing. A patient who had clinical features suggestive of parthenium dermatitis was tested.

Patch testing was carried out with the parthenium antigen included in the (Indian Standard Series ISS), other antigens in the plant series, a small portion of the parthenium leaf, and the 4 composts 'as is' and in 1% pet. All the patch sites except control showed ++ reaction on D2 and D4, thus confirming the allergic potential of the compost.

'Parth' in the Sanskrit language, is another name for Arjuna, an invincible or indestructible character in the Indian epic *Mahabharata*. *P. hysterophorus* is thus inadvertently, aptly named (A. Lonkar, Pune-41107. Retired from practice, personal communication).

Because our patient reacted to the compost, we conclude that the compost may perpetuate parthenium dermatitis as the allergic potential is retained. In the hope of using the weed, it is proposed that parthenium fibres may be used in the manufacture of paper, textile, and furniture. However, before the fabrication and use of these products, it is essential to ascertain whether the allergenicity is retained in the parthenium fibres as dermatitis can get aggravated in the parthenium-sensitive patient.

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