

**A STUDY OF PHYTOPHOTODERMATITIS IN  
MALTA**

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## Introduction

Phytophotodermatitis is a toxic skin reaction brought about by the combination of the following two effects: (a) furanocoumarin molecules transferred onto the skin by contact with certain plant species and/or products derived from these species; and (b) followed by the exposure of the areas of contact to solar ultraviolet-A radiation. The plant species belong to the Moraceae, the Leguminosae, the Rutaceae and the Umbelliferae families. Derived products include Persian lime juice and liquids containing bergamot oil.

In Malta there are very few cases of phytophotodermatitis reported each year. In this project the following tasks were carried out:

1. Compilation of a list of the local plant species known to contain furanocoumarins.
2. Compilation of a list of the responsible local plant species that cause phytophotodermatitis. Utilisation of different photo-patch testing methods helped in this compilation.
3. Interviewing patients reported to suffer from phytophotodermatitis and who attended the Dermatology Department, Sir Paul Boffa Hospital for medication.
4. Interviewing doctors and pharmacists to enquire about their familiarity with phytophotodermatitis.
5. Preparation of a case report of phytophotodermatitis from the common fig (*Ficus carica*), aimed to be published in a medical journal.
6. Proposal of issuing a leaflet and a poster aimed at increasing the awareness of phytophotodermatitis.

## Methodology

By collecting and reviewing the literature available at present, a list of twenty three locally available plant species that contain furanocoumarins was compiled. Of these, thirteen were reported to cause phytophotodermatitis in other countries and five were reported to cause phytophotodermatitis locally.

Two photo-patch testing methods were devised. Method 1 carried out at the Dermatology Department, consisted of keeping plant samples in contact with the upper back for forty eight hours by means of Finn Chambers<sup>(R)</sup>. Irradiation with a 125 Watt, UV-A lamp was performed. The volunteers were patients currently suffering from phytophotodermatitis. The irradiated area were examined forty-eight hours following the irradiation. Method 2 involved contact of the plant samples with the upper back region of volunteers and then irradiating with afternoon sunlight for half an hour. The irradiated areas were observed twenty-four hours and forty-eight hours following the exposure.

In **Survey 1** patients diagnosed as suffering from phytophotodermatitis at the Dermatology Department were interviewed. Relevant data of the patients that attended Sir Paul Boffa Hospital due to phytophotodermatitis since 1987 were obtained and correlated with these interviews.

In **Survey 2** discussions were held with a number of medical doctors and pharmacists regarding their ideas on the subject.

**Visual Aids.** A leaflet was designed; the aim was to create an awareness to the potential risks by the plants. Distribution of this leaflet is recommended specifically to persons at risk including cultivators, gatherers, packers and vendors. A sample of a poster was also devised to serve the same function.

**Case Report.** A case report was prepared describing the sequence of events that occurred leading to phytophotodermatitis in a fig gatherer.

Results and a list of the local flora reported to cause phytophotodermatitis in foreign countries and another list indicating the species recorded to cause phytophotodermatitis in Malta are included. The common fig is the plant mostly responsible for phytophotodermatitis in Malta. About fifteen annual cases of phytophotodermatitis were recorded since 1987, the majority in August.

## **Conclusion**

Although phytophotodermatitis does not occur in a large number of patients, it may still be regarded as an occupational hazard. Education of people who are at risk is therefore recommended in order to prevent the development of a major problem.

## References

- Borg, A. Descriptive Flora of the Maltese Islands including the Ferns and Flowering Plants. Government Printing Office, Malta, 1927.
- Haslam, S.M., Sell, P.D., Wolseley, P.A. A Flora of the Maltese Islands. Malta University Press, Msida, Malta, 1977.
- Harber, L.C., Bickers, D.R. Photosensitivity Diseases - Principles of Diagnosis and Treatment. B.C. Decker Inc. Toronto, Philadelphia, 1989; 406-407.
- Kavli, G., Volden, G. Phytophotodermatitis. Photodermatology, 1984; 1: 65-75.
- Mitchell, J.C., Rook, A. Botanical Dermatology: Plants and Plant Products Injurious to The Skin. Greengrass, Vancouver 1979; 391, 414-425, 472-473, 476-479, 607-619, 621-628, 681-703.
- Pathak, M.A., Farrington, D., Fitzpatrick, T.B. The presently known distribution of furanocoumarins (psoralens) in plants. J. Invest. Dermatol. 1962; 39: 225-239.
- Pathak, M.A. Phytophotodermatitis. In Clinics in Dermatology, 1986: 2: 103-121.
- Seligman, P.J. et al. Phytophotodermatitis from Celery Among Grocery Store Worker. Arch. Dermatol., 1987; 123: 1478-1482.