

INDOOR DUST DIRECT EXAMINATION (E.D.P.A.®) AND BIOTIC POLLUTION IN CONFINED ENVIRONMENTS

Simona Principato* (1), Iolanda Moretta (2), Mario A. Principato (2), Luca Stingeni (3)

(1) Urania Research Center, Perugia (Italy), (2) Department of Veterinary Medicine, University of Perugia (Italy), (3) Clinical Allergological and Venereological Dermatology Section, Department of Medicine, University of Perugia (Italy)

Indoor biotic pollution is a condition in which living organisms cause infestations in confined environments and they are often represented by insects and mites of medical, agri-food, industrial, or forensic interest, depending on the environment and on the point of view taken into consideration. Indoor infestations can lead to several different problems, above all dermatological ones, due to the unavoidable interaction between humans and arthropods. Therefore it is necessary to know the causes to be able to act targetly and remove the problems (1,2). The Indoor Dust Direct Examination (E.D.P.A.®) is a patented diagnostic method, exclusively performed in the Urania Research Center in Perugia (Central Italy), that is able to detect the traces left by insects and mites in confined environments, through the examination of dust samples simply collected by sweeping the dust of the floor of every indoor area (3). The dust examination requires a global screening of the material, which is initially sifted and then analysed both at a dry and liquid states, until it leads to the detection of the traces and to the isolation and identification of the agent suspected to be the cause of the infestation (4,5). Among the fields of application of the E.D.P.A.®, the medical sector is the most relevant. Several cases of dermatitis of unknown environmental origin can be disclosed with the E.D.P.A.®, that allows to identify the etiologic agent, to discover where it is located, to discern if it is of outdoor origin, and then to intervene targetly to remove the cause and consequently to achieve spontaneous healing of dermopathy (6). In the year 2017 in housedust samples of n. 270 individuals suffering from dermatitis examined at URANIA Research Center the presence of mites was detected, above all of the genres *Pyemotes* (33,3%), *Glycyphagus* (16,2%) and *Tydeus* (14,8%) and in other n. 202 house dust samples the presence of insects, above all of the genres *Scleroderma* (13,8%), *Solenopsis* (17,3%) and *Ctenocephalides* (9,9%). Those reports allowed to diagnose the environmental origin of the dermatological problem, confirmed by the patients' quick healing after the targeted house disinfection. In the agri-food and industrial fields, the E.D.P.A.® enables to locate sites of larval infestation, to identify the species, to discover the origin of the pests and to calculate the time of the infestation, in order to have the control of the storages and of the production sites of the factory. It allows also to solve potential controversies between the enterprise and its customer. In the forensic field, the E.D.P.A.® can give also its contribution, detecting all the traces left in confined environments, discerning between their indoor or outdoor origin from the different concentration of the population of mites and insects or the different concentration of pollens and allows to find out if an area of interest was altered. In conclusion, the E.D.P.A.® allows to monitor every indoor environment to different aims through the examination of the dust samples. They can be sent to URANIA Research Center from all over the world, as the collected material does not undergo damages during shipping, nor it alters for even long delivery times.

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