Cell damage induced by asbestos similar particles

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The presence, in nature, of asbestos similar particles, highly toxic and potentially cancerogenic for human healthy is well known (1). Inhalation of the fibrous form of erionite, has been shown to cause effects compared to those observed with mineral fibers classified as “asbestos,” including malignant mesothelioma, a disease typically associated with occupational and environmental exposures to asbestos (2). In this work various zeolite materials have been considered because of their suspected carcinogenic activity and, the possible interactions occurring between asbestiform fibers and U937 cell, a human hemopoietic cell line, have been evaluated. Chemical and morpho-functional analyses have been carried out, both to characterize fiber structure and cell response. Cells showed the ability to internalize the minerals, as observed after TEM analyses. With zeolite exposure time increasing, a diffuse cell damage with features of apoptotic and necrotic death can be evidenced (3). These findings suggest that the fibrous form of scolecite or offretite too can be considered potentially toxic for cell culture in vitro.

References


Keywords

Asbestiform fiber; U937 cells.