STUDY OF CHROMOSOMAL ABERRATIONS IN WORKERS EXPOSED TO MERCURY

A THESIS

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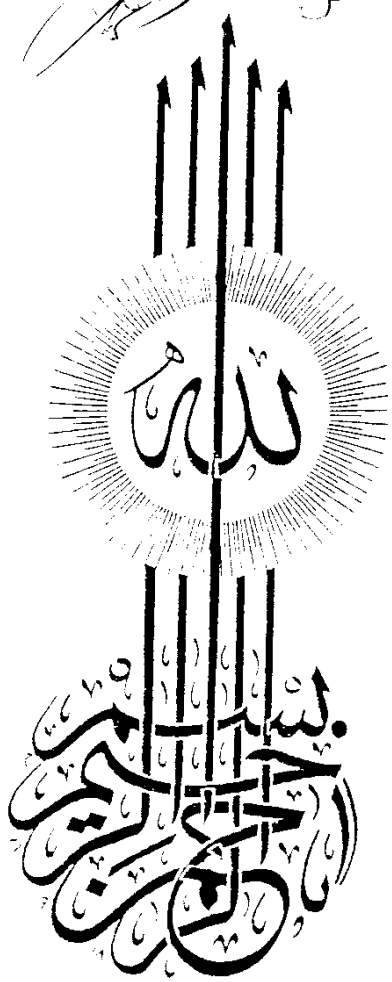

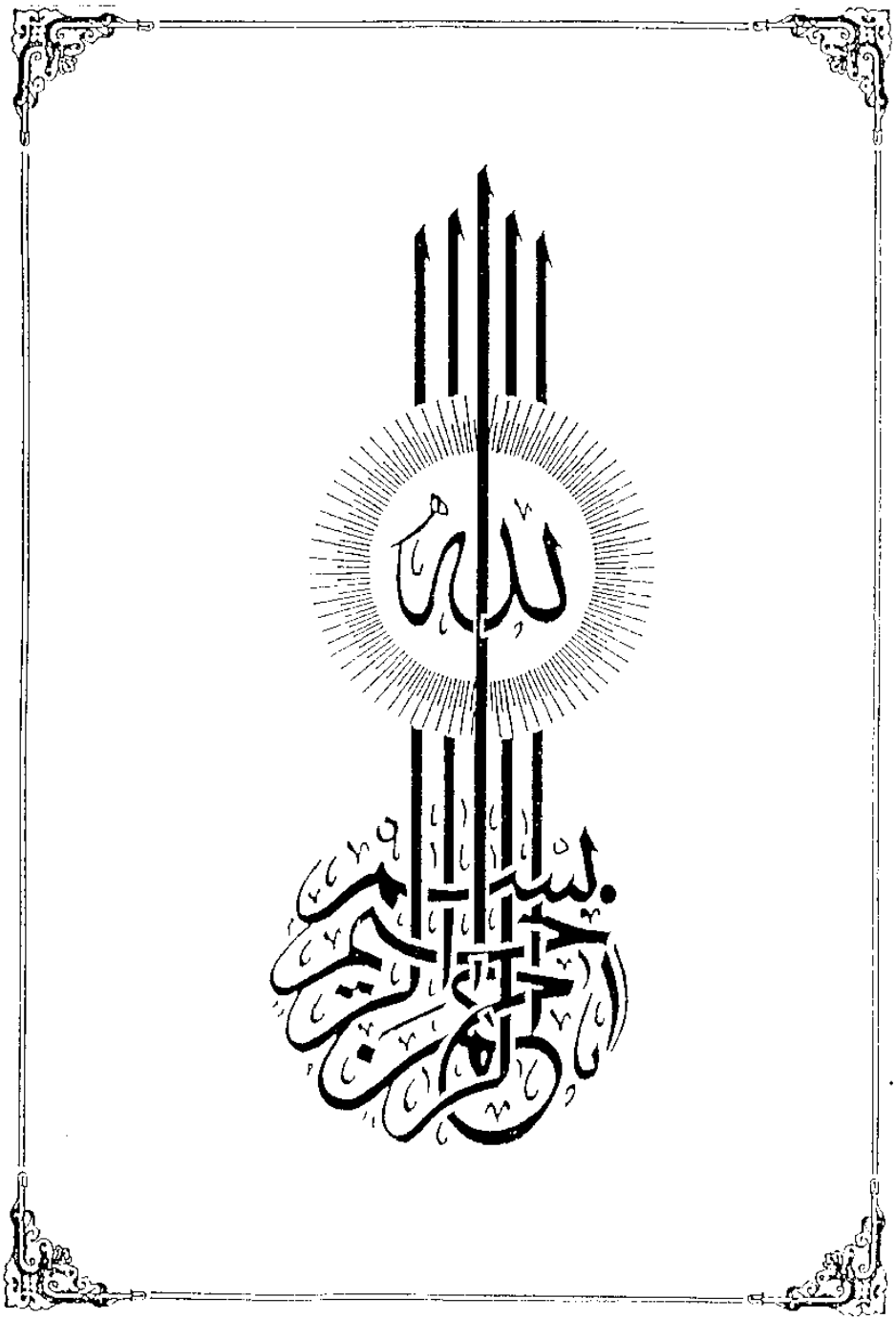

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MAGED EL STOUHY

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INTRODUCTION

The progressive increase of synthetic compounds in human environment and its burden on the ecosystem, initiated the importance of genetic toxicology as a new field of relevance in preventive medicine [Loprieno, 1979]. The detection of chemicals that may lead to genetic hazardous effect in the environment , is now both necessary and feasible [Environmental Mutagen Society Board , 1975].

Several assay systems with reliable methods were developed. Mutation assays in microorganisms , present one way of testing [Zimmerman, 1971 - Ames et al.,1975]. Another way is Drosophila mutation assay [Hanna and Dyer,1975 - Huang, 1977].

In vivo as well as in vitro cytogenetic assays were developed on plant cells [Khilman , 1971], and mamalian cells [Chu 1971 , Tonomura and Sasaki 1973, Schmid 1973].

Such varieties of the assay systems could be applied also for screening and detection of possible

carcinogenic agents in our environment.

The idea underlining these assays is based on the theory that occurance of neoplasm may be due to somatic mutation in the cells that have been exposed to a certain mutagen [Ishidate and Odashima ,1977].

The history of chromosomal abnormalities study in human exposed to chemicals is relatively short [Purchase, 1978]. First attempts started in mid sixties , when Vigliani [1964] published a paper on the abnormalities observed in the chromosomes of peripheral lymphocytes of workers exposed to benzene. These abnormalities on benzene exposed workers were continued by [Forni and Moreo,1967 , Tough et al., 1970 , and forni et al., 1971].

Later on , studies of the effects on chromosomes after human exposure to other chemicals followed, and surveys were carried out on industrial populations. So, investigations were carried out on workers exposed to lead [O'Riodan and Evans 1974], Mercury [Verschaeve et al.,1976], Vinyl chloride [Szentesi et al., 1976] , Epichlorhydrin [Kucerova and Zhurkov, 1977] ,

pesticides[El-Ghazali et al.,1982]and mixture of trace metals [Anwar et al., 1984].

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AIM OF THE WORK

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The preasent work is an attempt to add some informations about the danger of exposure to inorganic mercury compounds .

The aim of this work is to test for the mutagenic effect of exposure to mercury nitrate through the detection of chromosomal aberrations in workers exposed to it, also to find out a dose response relationship.

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LITRATURE REVIEW