

A STUDY ON THE HAEMATOLOGIC EFFECTS OF EXPOSURE TO ELECTROMAGNETIC FIELDS

THESIS

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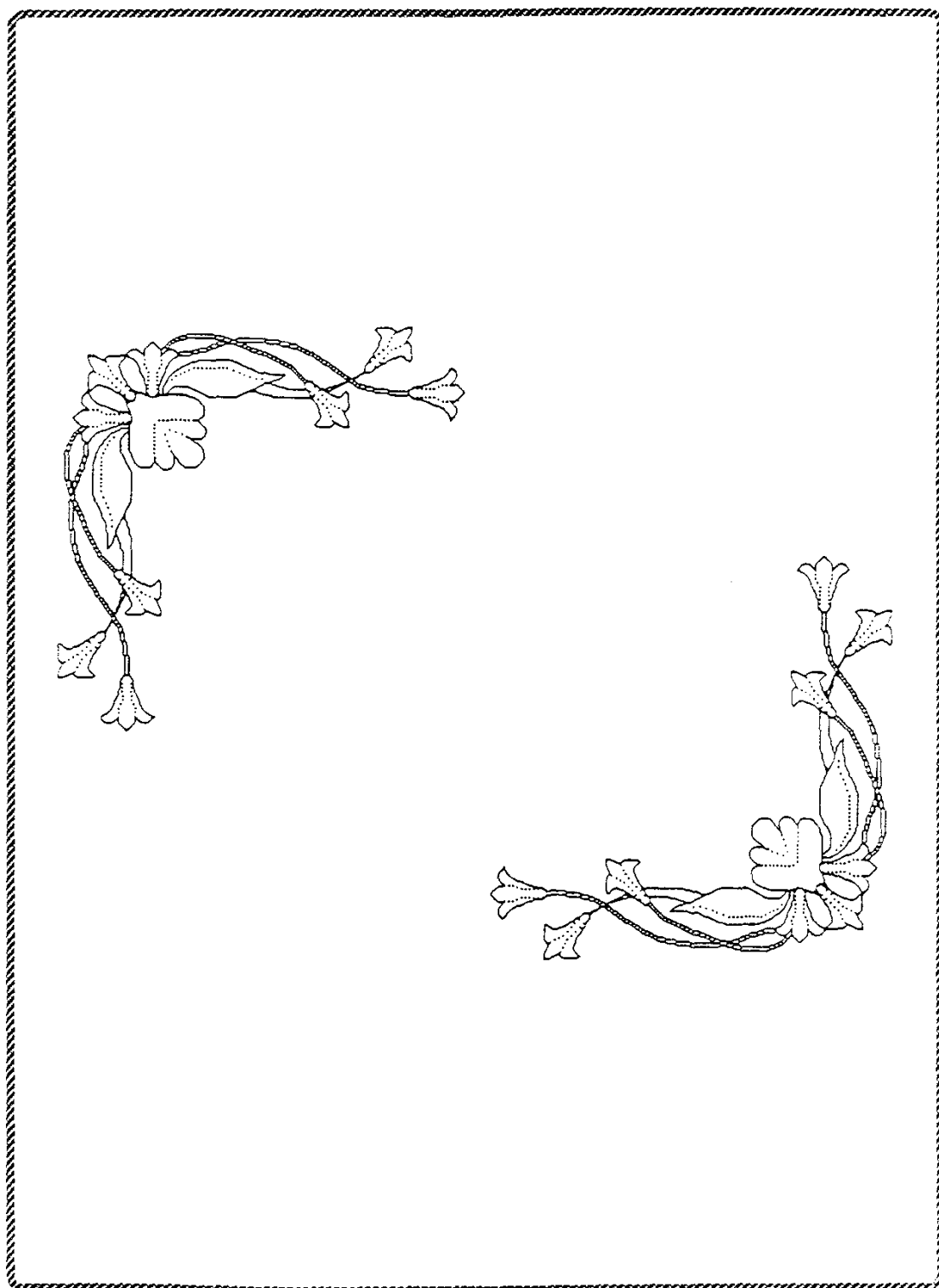
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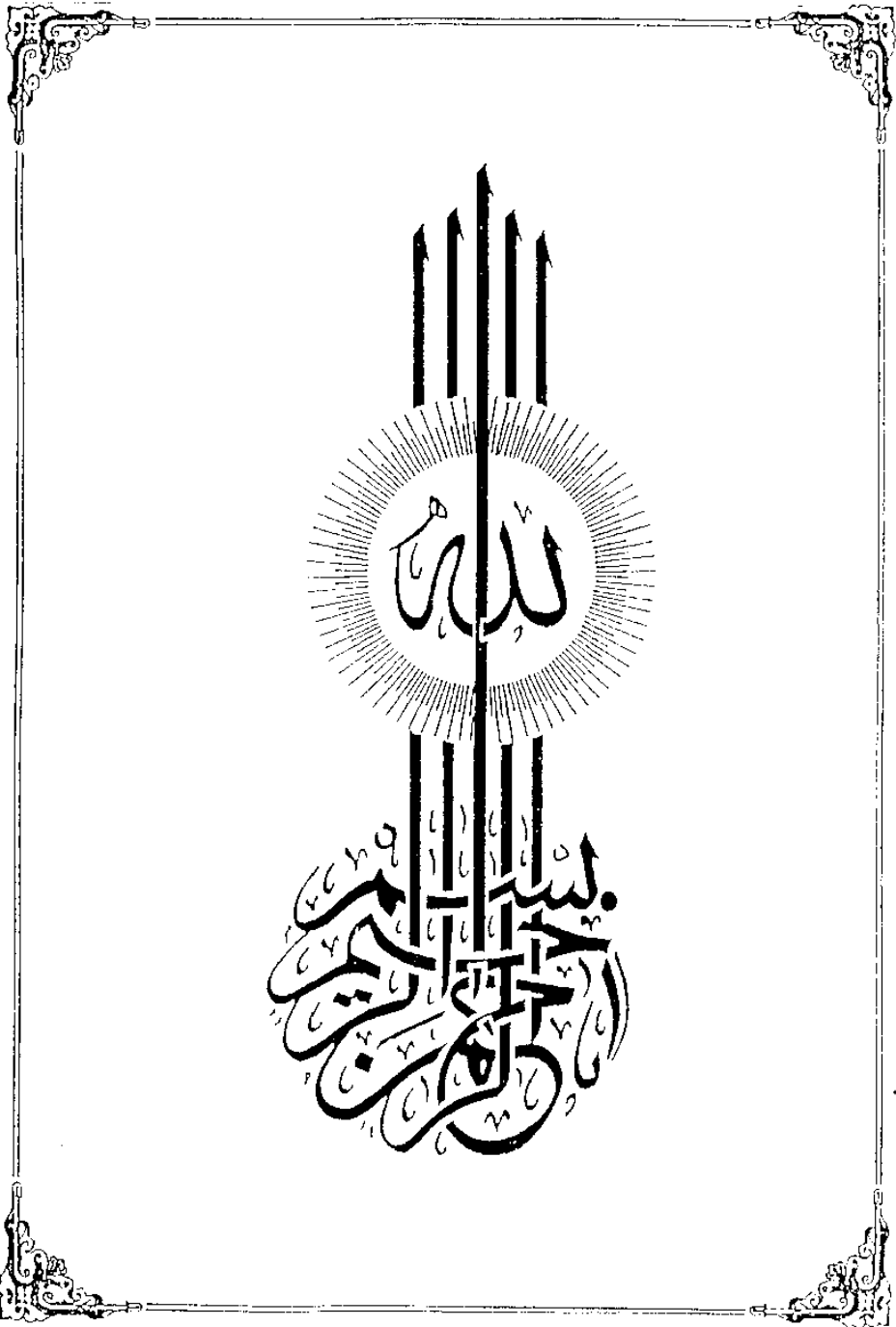
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List of Abbreviations

-AC	: Alternating current .
-CFU-blast	: Colony forming unit , blast (pleuripotential stem cell)
-CFU-GEMM	: Colony forming unit-granulocyte , stem cell erythrocyte, macrophage , megakaryocyte (myloid multipotential stem cells) .
-ELFs	: Extremely low frequency field .
-EMF	: Electromagnetic field .
-Gauss	: Unit of measuring magnetic field intensity .
-GHZ	: Giga hertz i.e 10^9 (thousand-million hertz) .
-GM-CFU	: Granulocyte , monocyte-colony forming unit (granulocyte-monocyte progenitor) .
-HZ	: Unit of measuring the frequency .
-KHz	: Kilo hertz i.e 10^3 (thousand-hertz) .
-MF	: Magnetic field .
-MHz	: Mega hertz i.e 10^6 (one million hertz) .
-NIR	: Non ionizing radiation .
-PEMF	: Pulsed electromagnetic field .
-RF	: Radio frequency .
-SAR	: Specific absorption rate i.e amount of energy in watt that can be absorbed by one Kg body weight .
-Tesla	: 1/1000 Gauss (unit of magnetic field intensity) .
-THz	: Tera hertz i.e 10^{12} (billion hertz) .
-UVR	: Ultraviolet rays .
-VDT	: Video display terminal .
-W/cm ²	: Power density i.e radiation power per unit surface area(unit).
-W/Kg	: Specific absorption rate (unit) .

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INTRODUCTION

INTRODUCTION

Living organisms are complex electrochemical systems that evolved over the years in a world with relatively limited electromagnetic energy emitters , and could interact with and adapt to this environment . However , in recent years , there has been a massive introduction of equipments that emit electromagnetic fields (EMFs) in an enormous range of frequencies , modulations , and intensities , and living organisms have not had the opportunity yet to adapt to such virtually ubiquitous environment (*Fery , 1993*) .

The possibility that electromagnetic fields could contribute to chronic human disease has been raised by certain epidemiological studies , though there has been a long history of lore suggesting that magnetism and electricity influence human health generally for the better (*Sagan , 1992*). More recently , *Little (1995)* , in his review on the environmental toxins that produce harmful effects in children, listed EMFs as one of the common toxic factors affecting child health .

Since everyone in modern society is exposed to EMF , increasing concern has been aroused over the health effects of exposure to EMF . In fact , a variety of biological effects have

been reported in response to weak electric and magnetic fields at levels similar to those encountered in the home (*Kowalczyk et al., 1991*) . The authors added that measurable changes in many different biological phenomena resulted from exposure to such weak fields , from effects on animal behaviour or on the immune response , to alterations in the intricacies of cell biochemistry and increased incidence of certain types of cancer.

Though research in this field has remained outside the general interest of biologist for a long time , it has become a popular subject in recent years . As reports concerning the biological effects of exposure to EMF are controversial , further studies in this respect would be justified .

AIM OF THE WORK

AIM OF THE WORK

This study was carried out to investigate the effects of exposure to low-frequency electromagnetic fields emitted from a colour TV set , as example of household appliances in everyday use , on different haematologic parameters , in order to throw more light on the electromagnetic bioeffects .