

ABBREVIATIONS

ALL : Acute lymphoblastic leukemia.

AML : Acute Myeloid leukemia.

AMML : Acute Myelomonocytic Leukemia.

CLL : Chronic Lymphocytic Leukemia.

TdT : Deoxynucleotidyl Transferase.

HEX : Hexosaminidase.

PAS : Periodic Acid Schiff.

S.B.B.: Sudan Black B.

ANAE : Non Specific Acid Alpha-Naphthyl Acetate Esterase.

PHS : Acid Phosphatase.

FAB : French-American-British.

TEM : Transmission Electron Microscopy.

SEM : Scanning Electron Microscopy.

POS : Positivity.

EST : Esterase.

SCR : Score.

C O N T E N T S

	Page
Introduction and Aim of Work	1
 CHAPTER I : General Review	
* Leukemia	
- History of Leukemia	4
- Definition	7
- Incidence	7
- Pathophysiology of Acute Leukemia..	11
- Chemotherapy of Leukemic Kinetics..	17
- Pathology of Acute Leukemia	19
* Clinical and Laboratory Findings and Prognosis of Acute Lymphoblastic Leukemia	24
* Leukemia Lymphoma Interrelationship..	37
* Classification of Leukemias.. .. .	40
* Cytologic Classification of Acute Leukemias	47
- French School Contribution to Classi- fication of Acute Leukemias	56
- Contribution of American School ..	59
- The W.H.O. Classification of Acute Leukemia and Related Diseases.. ..	60
- French-American-British Classifica- tion of Acute Leukemias	63
* Cytochemistry of Leukemias	81
* Periodic Acid Schiff Reaction (P.A.S.)	84
- Distribution of PAS Positive Material in Normal Cells	85
- PAS Reaction of Leucocytes in Neo- plasia	87

	Page
* Esterases	91
- Distribution of Esterases in Normal Hemic Cells	92
- Alpha-Naphthyl Acetate Esterase ..	93
- Naphthol AS-D Acetate Esterase ..	94
- Alpha-Naphthyl Butyrate Esterase ..	95
- Naphthol AS-D Chloroacetate Esterase	96
- Esterases Iso-Enzymes	97
* Acid Phosphatases	100
- Function of Leucocyte Acid Phosphatase	100
- Demonstration of Acid Phosphatases	102
- The Gomori Metal Precipitation Technique	102
- The Azo-Dye Method	103
- Acid Phosphatases in Normal Hemic Cells	105
- Light Microscopy	105
- Ultrastructural Demonstration of Acid Phosphatase in Hemic Cells ..	107
- Acid Phosphatases in Abnormal Hemic Cells	112
- Sudanophilia of Hemic Cells	114
- Sudanophilia of Normal Blood Cells	116
- Sudanophilia of Leucocyte Disorders	117
- Enzyme Markers	119
* Cytochemistry of Acute Lymphoblastic Leukemia	123
- The P.A.S. Reaction	124
- Acid Phosphatase	125
- Non Specific Acid Alpha-Naphthyl Acetate Esterase (ANAE)	127

	Page
* Ultrastructural Cytochemistry	130
- Transmission Electron Microscopy (TEM)	130
- Scanning Electron Microscopy (SEM)	137
CHAPTER II : Material and Methods	
* Material	140
* Methods	141
* Romanowsky Staining	141
* Cytochemistry	143
* Sudan Black B Stain	144
* Periodic Acid Schiff Stain (PAS) ..	146
* Acid Phosphatase	150
* Non Specific Acid Esterase	152
* Statistical Methods	156
CHAPTER III: Results	158
CHAPTER IV : Discussion	215
CHAPTER V : Summary and Conclusion	235
- References	241
- Arabic Summary.	