

CONTENT

1 INTRODUCTION.....	5
2 NON-THERMAL PLASMA OF DISCHARGES IN LIQUIDS.....	7
2.1 Plasma composition and generation.....	7
2.2 Breakdown theories.....	8
2.3 Physical and chemical properties.....	8
2.4 Specific aspects of pin-hole discharges.....	9
3 EXPERIMENTAL TECHNIQUES.....	10
3.1 Plasma reactors.....	10
3.2 Plasma diagnostics.....	11
3.3 Chemical analyses of treated solutions.....	11
4 LIST OF PAPERS INCLUDED IN HABILITATION THESIS.....	13
5 OVERVIEW OF THE MOST IMPORTANT RESULTS.....	14
5.1 Discharge breakdown and plasma diagnostics.....	14
5.1.1 <i>Electric measurements</i>	14
5.1.2 <i>Visual records of plasma streamers and bubble formation</i>	17
5.1.3 <i>Plasma diagnostics by optical emission spectroscopy</i>	18
5.2 Physical and chemical processes.....	19
5.2.1 <i>Changes of solution properties during the discharge treatment</i>	20
5.2.2 <i>Formation of chemical species</i>	20
5.3 Applications.....	23
5.3.1 <i>Decomposition of organic compounds</i>	24
5.3.2 <i>Plasma sterilisations</i>	26
5.3.3 <i>Effects of electrolysis, UV radiation and ozone</i>	27
6 CONCLUSIONS AND PERSPECTIVES.....	28
7 REFERENCES.....	29
ABSTRACT.....	32