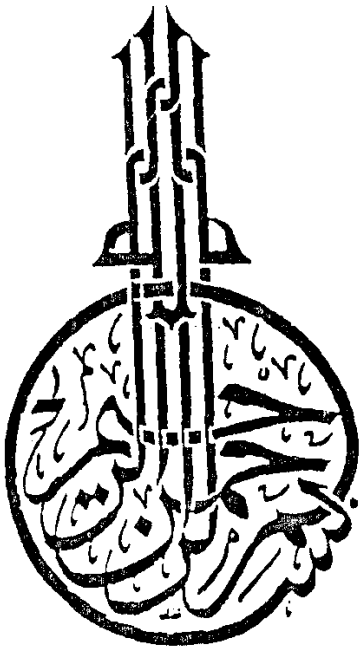
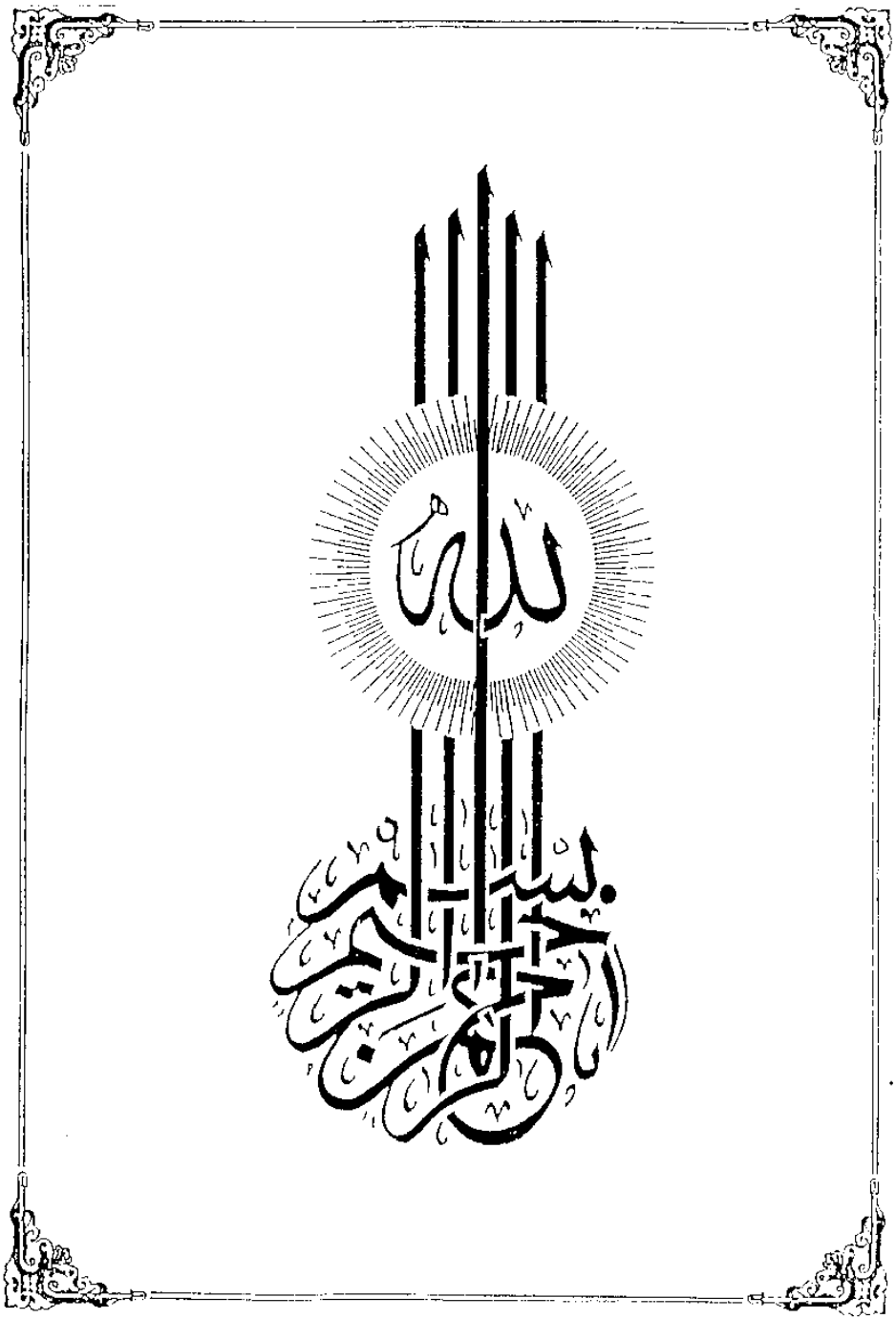


"سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم"

صدق الله العظيم



A THESIS
ENTITLED

PALM TREE AS A SOURCE FOR THE PRODUCTION OF CELLULOSE PULPS AND THEIR APPLICATION

PRESENTED
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CONTENTS

AIM OF THE WORK

Now a days there are several types of dates more than 2000 types. Egypt at the last period is concerned with growing palms to produce different types of dates. It is known that, at different stages of growing palms, there are several waste such as palm leaves.

In Egypt there are three millions palm tree and the average number of leaves produced during cleaning process is 15- 20 leaves per palm per year and the average weight of the leave is 5-7 kg. i.e. the net weight of leaves due to the cleaning process is 80-120 kg./year.

Palm's fibers which are produced from the wastes of palm are used in different new industrial fields such as paper industry. Some researches are carried out to produce paper from different parts of palm specially leaves, and it has been found that they contain high percentage of cellulose 35-45% in average. Therefore research will be conducted in this thesis to produce different kinds of pulp from palm leaves.

This work is devided into five chapters as follows:

In the first chapter; palm leaves will be pulped using different methods of pulping such as soda, kraft and sulfite pulping also, the effect of addition of organosolv such as acetone and dioxan with different ratios at different pulping temperature on the result pulps will be considered.

In the second chapter, non- organosolv and organosolv pulps will be bleached by multistages processes- such as (soda extraction-hypochlorite- chlorite steps). The chemical properties of the bleached pulps will be studied.

In the third chapter; Crystallinity index, asymmetry index and hydroxyl and carboxyl groups will be investigated using IR. Spectroscopy.

In the fourth chapter, optical and strength properties of the papers made from different pulps will be investigated to see the effect of the different pulping conditions and consequently the chemical constituents on the properties of the papers.

In the last chapter, soda lignin which are produced from the black liquor of soda process will be converted into lignosulfonate. Also sodium lignosulfonate will be isolated directly from black liquor of sulfite pulping of palm leaves. These lignosulfonates will be used as dispersing agents in dyeing of polyester and compared with the lignosulfonate which delivered from ISMA DYE Co. The chemical and spectral analysis of the lignin and lignosulfonates will be considered. Also K/S and fastness properties of dyed fabrics with using prepared or industrially used lignosulfonates will be considered.