PEDOLOGICAL STUDIES ON THE SOILS OF SOME WADIS IN SINAI PENINSULA

By

NAWAL FAKHRY BESHAY

A Thesis

Submitted in Partial Fulfilment of the Requirements for the Degree

of

DOCTOR OF PHILOSOPHY

in

Agricultural Science

(Soil Science)

Soil Department
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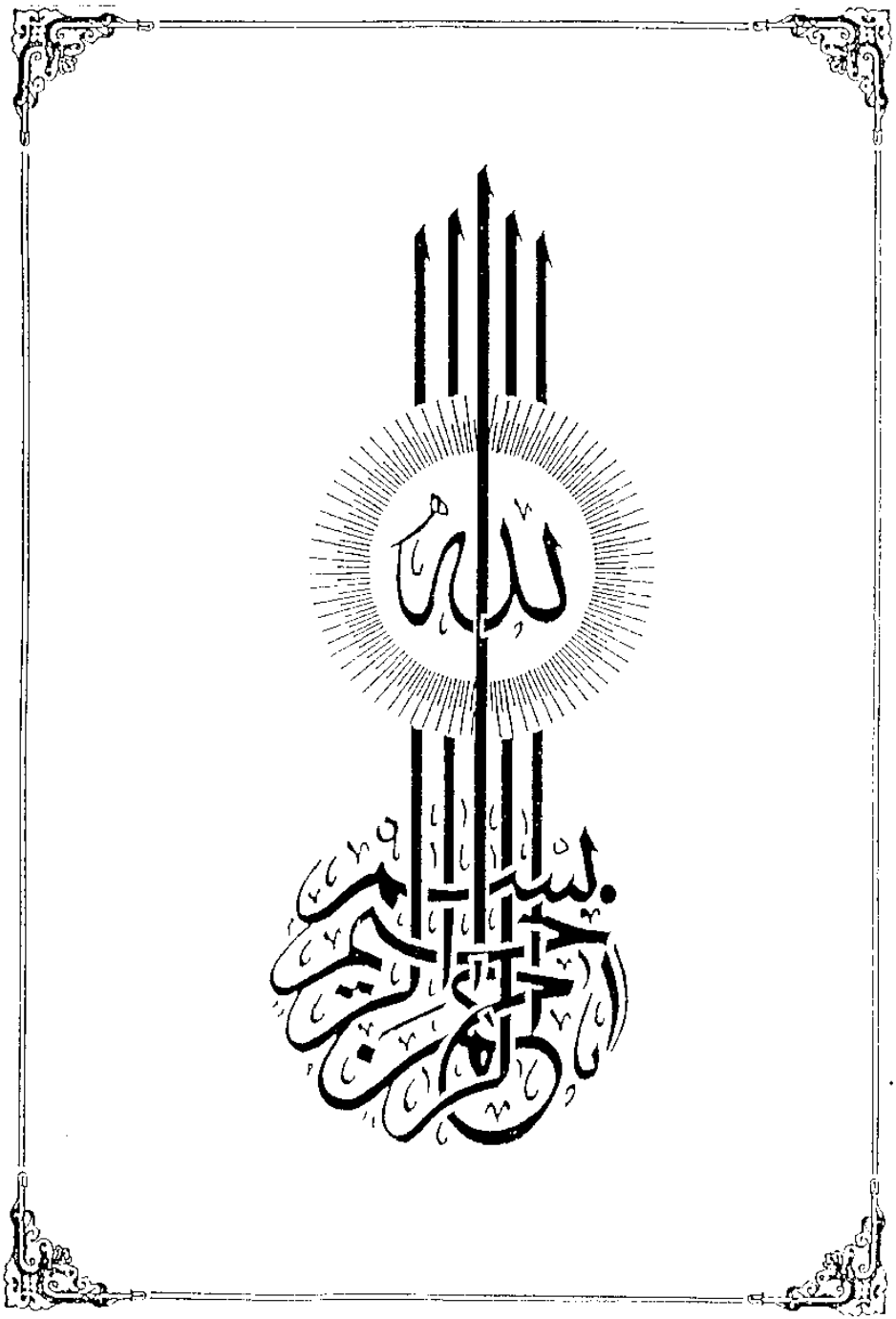

Approval Sheet

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ABSTRACT

This study aimed to evaluate the pedogenic characteristics of the soils of some wadis in Sinai Peninsula. These wadis are El-Tor and Isla in the south-western part; Sudr and Lehta in western-central part; El-Bruk in central part, in addition to wadi El-Arish in the northern part of Sinai Peninsula. The prevailing climate in these regions is hot desert.

Fifty-two soil profiles were selected to represent the main geomorphic units in these wadis. The representative profiles were described in the field morphologically and their physical, chemical, and mineralogical characteristics were evaluated. The obtained results indicated the following:

The soils studied are formed of three different types of parent rocks.

The variations in the clay minerals and heavy mineral assemblages reflect variations of the parent materials and depositional regimes.

Studying the macronutrients status indicated that total nitrogen is very low, total and extractable phosphorus present in low and medium levels, while total and extractable potassium show medium and high levels. In regard to the total micronutrients (Fe, Mn, Zn and Cu), they attain medium and high levels. On the other hand, values of extractable Fe, Zn, Mn and Cu in most investigated soil samples are either sufficient or near the marginal level, except some soil which are within the range of deficiency.

On basis of Soil Taxonomy (1975), the soils under consideration could be distinguished into fourteen subgroup within the ordres *Entisols* and *Aridisols*.

Regarding land suitability classification for agriculture use; the studied soils fall in the following classes: moderately suitable (S2), marginally suitable (S3), currently not suitable (N1) and permanently not suitable (N2).

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