

Dedication

*This work is dedicated to the spirit of my
mother and father, my brothers and sisters and
to all people who helped me during the course of
this work*

Acknowledgment

First of all my thanks and prayer are due to Almighty Allah, the beneficent the merciful for giving me health and strength to complete this work .

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List of Contents

| No | Name | Page |
|--|------------------------------------|------|
| 1 | Dedication | I |
| 2 | Acknowledgment | II |
| 3 | List of Tables | III |
| 4 | List of Contents | VI |
| 5 | List of Figures | VII |
| 6 | English Abstract | VIII |
| 7 | Arabic Abstract | X |
| Chapter One : Introduction | | |
| 1.1 | Background | 1 |
| 1.2 | Objective | 2 |
| Chapter Two : Locations of Study | | |
| 2.1 | Environmental Setup | 3 |
| 2.1.1 | Locations and Climate | 3 |
| 2.1.2 | The Soils | 5 |
| Chapter Three : Literature Review | | |
| 3.1 | Definition | 7 |
| 3.2 | Soil Structure | 8 |
| 3.3 | Soil Texture | 9 |
| 3.4 | Factors Effecting Soil Aggregation | 9 |
| 3.4.1. | Clay Content | 9 |
| 3.4.2 | Calcium Carbonate | 12 |
| 3.4.3 | (Exchangeable Sodium Percent (ESP | 13 |

| | | |
|---|---|----|
| 3.4.4 | Organic Matter | 14 |
| 3.4.5 | Oxides | 16 |
| Chapter Four : Materials and Methods | | |
| 4.1 | Materials | 18 |
| 4.2 | Methods | 19 |
| 4.2.1 | Method of Data Collection | 19 |
| 4.2.1.1 | Field Method and Soil Sample | 19 |
| 4.2.1.2 | Laboratory Methods | 20 |
| 1 | Soil Moisture Content | 20 |
| 2 | Saturation Percentage | 20 |
| 3 | Soil pH | 20 |
| 4 | Electrical Conductivity | 20 |
| 5 | Particle Size Distribution | 20 |
| 6 | Calcium Carbonate | 21 |
| 7 | Organic Carbon & Organic Matter | 22 |
| 8 | Cation Exchange Capacity (CEC) | 22 |
| 9 | Exchangeable Sodium | 22 |
| 10 | Soluble Cations | 22 |
| 11 | Sodium Adsorption Ratio (SAR) | 22 |
| 12 | Exchangeable Cations (Na ⁺ , Ca ⁺⁺ , Mg ⁺⁺ &K ⁺) | 23 |
| 13 | Exchange Sodium percentage | 23 |
| 14 | Index of Structure | 23 |
| Chapter Five : Result and Discussion | | |
| 5.1 | Result | 24 |

| | | |
|--|----------------------|----|
| 5.2 | Statistical Analysis | 36 |
| 5.3 | Discussion | 37 |
| Chapter Six : Conclusion and Recommendation | | |
| 6.1 | Conclusion | 38 |
| 6.2 | Recommendation | 39 |
| | References | 40 |

List of Table s

| No | Table | Page |
|----|--|------|
| 1 | Tables No (1) Physical and Chemical Properties | 25 |
| 2 | Tables No (2) Physical and Chemical Properties | 26 |
| 3 | Tables No (3) Physical and Chemical Properties | 27 |
| 4 | Tables No (4) Physical and Chemical Properties | 28 |
| 5 | Tables No (5) factors Effecting Soil Aggregate | 29 |
| 6 | Tables No (6) factors Effecting Soil Aggregate | 29 |
| 7 | Tables No (7) factors Effecting Soil Aggregate | 30 |
| 8 | Tables No (8) factors Effecting Soil Aggregate | 30 |

List of Figures

| No | Figures | Pages |
|----|---|-------|
| 1 | Relation between I.S and Clay, West Omdurman | 31 |
| 2 | Relation between I.S and CaCO ₃ , West Omdurman | 31 |
| 3 | Relation between I.S and Clay, Alkadaro | 32 |
| 4 | Relation between I.S and CaCO ₃ , Alkadaro | 32 |
| 5 | Relation between I.S and Clay, Soba | 33 |
| 6 | Relation between I.S and CaCO ₃ , Soba | 33 |
| 7 | Relation between I.S and Clay, Shambat | 34 |
| 8 | Relation between I.S and CaCO ₃ , Shambat | 34 |
| 9 | Relation between I.S and Clay in all area of study | 35 |
| 10 | Relation between I.S and CaCO ₃ in all area of study | 35 |

ABSTRACT

Structural soil aggregates and stability of such aggregates has a tremendous impact on managing the cracking clay soils that belong to the soil order vertisols that are existing in the central clay plain of the Sudan. There are also recent soils belonging to the soil order Entisols that occur in association with the cracking clays. Therefore, soil plant relationship, fertility and biological activities are manifestations caused due to soil aggregate. The importance of knowledge gained from such experience would assist land user manipulate management practices in different agro-ecological zones of the Sudan ranging from arid to wet monsoon climate to cope with teporal changes of climate. The objective of this study is to identify the effect of the contents of clay and calcium carbonate on formation of soil aggregate to embark upon appropriate land management practices.

The study covered 4 areas, 2 out of which are occurring in west Omdurman and Alkadroo, belonging to the soil order Entisols (recent soils). The remaining 2 areas are in Soba and Shambat representing cracking clays of the order Vertisols. Soils samples were collected from six sites each consisting of fixed depth intervals of 0-20 and 20-45cm, totaling 48 samples. Soil samples were analyzed at the laboratories of soil science along with statistical analysis at the College of Agricultural Studies of Sudan University of Science and Technology SUST, Studies revealed that the clay content has increased soil aggregation in the four areas. The correlation with calcium carbonate was insignificant at Alkadroo, Soba and Shambat due to interaction with Exchangeable Sodium Percentage ESP. on the contrary, at

west Omdurman, an exception exists in that calcium carbonate significantly correlated with Index of Structure increasing aggregate.

الخلاصة

بناء تجمعات التربة واستقرارها , لها تأثير ضخم في ادارة التربة الطينية المتشقة التي تنتمي الي رتبة الفيرتوسول التي توجد في السهول الطينية الوسطي في السودان. وايضا الترب الحديثة التي تنتمي الي رتبة الانتسول في رباط مع الطين المتشقق. لهذا السبب, علاقة التربة بالنيات, وخصوبة التربة والنشاطات الحيوية دليل علي تأثير تجمعات التربة.

اهمية زيادة المعرفة من هذه التجربة هو مساعدة علماء الارض في ادارة التطبيقات في مختلف مجالات البيئة الزراعية في السودان, التي تقع بين المناخ الجاف ومناخ المنسون الرطبة لتوجه مشكلة التغيرات المناخية بنجاح.

والهدف من هذه الدراسة هو معرفة تأثير محتوى الطين وكربونات الكالسيوم في تكوين تجمعات التربة , للشروع في ادارة تطبيقات الترب المناسبة.

وقد تمت هذه الدراسة في اربعة مناطق في ولاية الخرطوم اثنين من هذه المناطق هي غرب امدرمان والكدرو التي تنتمي الي رتبة الانتيسول والمنطقتين الباقيات هي سوبا وشمبات التي توجد في الاراضي المتشقة من رتبة الافيرتيسول. العينات التي جمعت للتجربة من ست حفر كلها متوافق في اعماق محددة الفواصل من 0-20 , 20-45سم وجميعها 48 عينة.

العينات تم تحليلها في معامل علوم التربة والمياه مع التحليل الاحصائي في كلية الدراسات الزراعية جامعة الیودان للعلوم والتكنولوجيا.

تكشف هذه الدراسة ان محتوى الطين تزيد تجمعات التربة في الاربعة مناطق , وعلاقة كربونات الكالسيوم مع نسبة الصوديوم المتبادل غير معنوي في منطقة الكدرو , سوبا وشمبات علي عكس منط غرب امدرمان في حالة استثنائية وجود علاقة معنوية بين كربونات الكالسيوم Index of Structure التي تزيد تجمعات التربة.