

الاستفادة من المياه المالحة لإنتاج أعلاف من النباتات الملحية لتغذية الأرانب

رسالة مقدمة من الطالب

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لاستكمال متطلبات الحصول علي درجة الماجستير
في العلوم البيئية

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UTILIZING SALINE WATER TO PRODUCE HALLOPHYTES FODDER TO FEED RABBITS

Submitted By

Yasser Ibrahim Abd El Aziz Ibrahim

B.Sc. of Agric.Sci. (Educational Sciences), Higher Institute of Agricultural Cooperation, 2002
Diploma of Environmental Sciences, Institute of Environmental Studies & Research, Ain
Shams University, 2008

A thesis submitted in Partial Fulfillment
Of
The Requirement for the Master Degree
In
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Institute of Environmental Studies and Research
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List of Contents

	Subject		page
1		Introduction.	1
2		Review of literature.	3
3		Materials and Methods.	27
	3-1	Experimental Feeds.	27
	3-1-1	Kochia vegetation .	27
	3-1-2	Granular feed .	27
	3-2	Experimental Animals.	28
	3-3	Blood samples and analysis.	29
	3-4	Analytical methods	29
	3-5	Statistical Analysis.	29
	3-6	Rabbit's battery.	30
	3-7	Vaccinations Given .	30
	3-7-1	Rihidran (rehydration solution).	30
	3-7-2	Cooksey Cure for diarrhea .	30
	3-7-3	Hero vit.AD3E + c	31
	3-7-4	Aminovital to raise the efficiency of feed conversion	31

	3-7-5	Ivomak for Scabies	31
4		Results and discussions.	33
	4-1	Rabbit's feed intake	33
	4-1-1	Group (1) was fed 100% granular feed (growth and maintenance requirements) from fifth to eleventh weak (control group).	33
	4-1-2	Group (2) was fed 100% saline kochia (growth) and granular feed (maintenance) from fifth to eleventh weak.	34
	4-1-3	Group (3) was fed 100% fresh kochia (growth+ maintenance) from fifth to eleventh weak.	35
	4-1-4	Group (4) were fed 50% fresh kochia, 50% saline kochia feed (Growth), Granular feed (maintenance) from fifth to eleventh weak.	36
	4-1-5	Group (5) were fed 25% fresh kochia, 75% saline kochia (Growth), Granular feed (maintenance) from fifth to eleventh weak.	37
	4-1-6	Group (6) were fed 25% saline kochia, 75% fresh kochia (Growth), Granular feed (maintenance) from fifth to eleventh weak	38
	4-2	Blood parameters	39

	4-3	Growth performance and feed conversion	42
5		Summary	52
6		References	56
7		Arabic summery	
8		Arabic abstract.	

List of Tables

Table No.	description	page
1	Chemical composition of feed stuffs (% as fed).	28
2	Diseases, History of the Disease and Treating the Disease.	32
3	Estimation the amount of fodder 100% granular feed (growth and maintenance requirements) from fifth to eleventh week (control group).	34
4	Estimation the amount of fodder and percentage of mixing available 100% saline kochia (growth) and granular feed (maintenance) in from fifth to eleventh week.	35
5	Estimation the amount of fodder and percentage of mixing available from fresh green feed 100% fresh kochia (growth+ maintenance)).from fifth to eleventh week.	36
6	Estimation the amount of fodder and percentage of mixing available from fresh green feed 50%, salt green feed 50% fresh kochia, 50% saline kochia feed (Growth), Granular feed (maintenance)in fifth weak	37
7	Estimation the amount of fodder and percentage of mixing available from fresh green feed 25% fresh kochia, 75% saline kochia (Growth), Granular feed (maintenance) from fifth to eleventh weak.	38

8	Estimation the amount of fodder 25% saline kochia, 75% fresh kochia (Growth), Granular feed (maintenance) from fifth to eleventh weak.	39
9	Effect of experimental feeds on blood plasma parameters in rabbits during the entire experimental period.	40
10	Effect of experimental treatments on growth performance and feed conversion in rabbits during the entire experimental period.	44
11	Chemical analysis of irrigation water.	47
12	Chemical analysis of soil abstracts, percentage of calcium carbonate and organic matter.	47

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ABSTRACT

The present study is aiming at utilizing saline water to produce halophytes fodder to be a feasible feed, reduce feed cost, and overcome fresh water shortage and to evaluate the nutritive quality and nutritional performance of rabbits. Forty eight rabbits (24 males and 24 females) were raised from birth to weaning on breastfeeding till fourth week of age, all rabbits were received the same treatment in this period 'breastfeeding'. These rabbits immediately after weaned were assigned into six similar groups (8 animals each) 4 males and 4 females in the beginning of the fifth week of age. The animals were then divided randomly and fed proportional on fresh or saline water irrigated kochia indica and/or granular feed. Rabbits of the first group (control group, G1) were fed on 100% granular feed (growth and maintenance requirements) from fifth to eleventh weak , G2 were fed 100% saline water irrigated kochia (SWK) (growth) and granular feed (maintenance), G3 were fed 100% fresh water irrigated kochia(FWK) (growth+ maintenance), G4 were fed 50% fresh kochia, 50% saline water irrigated kochia feed (Growth), Granular feed (maintenance), G5 were fed 25% fresh waterkochia, 75% saline water irrigated kochia (Growth), Granular feed (maintenance) and G6 were fed 25% saline water irrigated kochia, 75% fresh kochia (Growth), Granular feed (maintenance). The results showed that insignificant differences ($P \geq 0.05$) were observed in plasma urea, creatinine, AST and ALT. Concerning growth performance and feed efficiency, the group which fed on 100% granular feed (G1) showed the highest value of average daily gain and daily feed intake ($P \leq 0.05$) compared with the other groups while G3 had a better values ($P \leq 0.05$) of feed conversion. Regarding initial and final weights, a significant

($P \leq 0.05$) differences were observed among the different groups, the highest values ($P \leq 0.05$) were recorded for G1 compared with the other five groups. Furthermore, the data show that a significant ($P \leq 0.05$) differences were observed in total gain among the rabbits of the different groups. These results indicate that utilizing saline water to produce halophytic fodder (kochia) could be an avenue to minimize the feedstuff shortage, feed cost and increase feed efficiency.

Key word: saline water, breastfeeding, halophytic fodder, Granular feed, Nutritive quality and nutritional performance

1 - INTRODUCTION

Water is the basic substance of life on earth, and it is increasingly in short supply. Water shortages affect 88 developing countries that are home to half of the world's population in these places (**Miller, 2003**).

The total amount of water on earth is about 1.4 billion km³ (330 million cubic miles), of this total, less than 3% is fresh water (about 35,000,000 km³), much of which (about 24,000,000 km³) is inaccessible due to the fact that it is frozen in ice caps and glaciers. It is estimated that just 0.77% (about 11,000,000 km³) of all the earth's water is held as groundwater, surface water (in lakes, swamps, rivers, etc.) and in plants and the atmosphere (**Miller, 2003**).

Khalifa (2005) stated that the major dilemma the world faces is how to increase and sustain productivity of irrigated agriculture while reducing the sector's water consumption. In other words, the challenge will be to produce more food with less water. The easily accessible water resources, surface and groundwater, of good quality have now been almost entirely committed. Moreover, (**Anon, 2009; El Shaer, 2010**) reported that the interest in search for alternative/additional feed ingredients is of paramount importance in developing countries, mainly, because of the acute shortage of traditional feed materials. Introduction of saline agriculture production systems in salt affected regions has proved to be an effective way to save fresh water for human and animal consumption while the saline water could be used for animal feed production.