Dedication:
With Love, to
Fatima and Tasnim

Acknowledgements

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Foreword

Humanity relies on a diverse range of cultivated species: at least 6000, such species used for a variety of purposes. It has often started that only a few staple crops produce the majority of the food supply. This might be correct but the important contribution of many minor species should not be underestimated. Agricultural research has traditionally focused on these staples; while relatively; little attention was given to minor (or underutilized or neglected) crops, particularly by scientists in developed countries. Such crops have therefore, generally failed to attract significant research funding. Unlike most staples, many of these neglected species are adapted to various marginal ground conditions such as those of the Himalayan highlands, arid and semi-arid areas, salt-affected soils, etc. Furthermore, many crops considered neglected at a global level are staples at a national or regional level (e.g. Andean roots, tubers of cassava etc.) contribute considerably to food supply in certain periods (e.g. indigenous fruit trees) or are important for a nutritionally well-balanced diet (e.g. indigenous vegetables). The limited information of available on many important and frequently basic aspects of neglected and underutilized crops hinders their development and their sustainable conservation. One major factor hampering this development is that the information available on germplasm is scattered and not readily accessible. Moreover, existing knowledge on the genetic potential of neglected crops is limited. This has resulted; frequently, in uncoordinated research efforts for most neglected crops, as well as in inefficient approaches to the conservation of these genetic resources.

"In building a paradigm of sustainable development, it's necessary to link concepts and procedures at the macro level with field-level practices to arrive at a way of translating a conceptual response in to a reality".

Abstract:

Two experiments were conducted at the nursery of the College of Agricultural Studies, Sudan University of Science and Technology at Shambat, Sudan. The main objectives were to evaluate propagation means of *Jatropha curcas* using different rooting media, IBA hormone and seed treatments. Two experiments were conducted in two seasons 2012 and 2013. The first experiment was on sexual propagation using dry or water soaked sound and cracked seeds. The second experiment was to study different cutting lengths using different rooting media and IBA hormone. The studied shoot and root parameters were: number and length of roots, taproot and stem thickness, number of leaves and number and lengths of branches. Results showed that there were significant differences under $P \leq_{0.05}$ of different cutting length, IBA concentrations and the media on all measured parameters. Data obtained indicated that it is advisable to use 30 - 40 cm cuttings with IBA at 313 mg/L water in silt-loam rooting media resulted in the best root formation for mass propagation techniques of *Jatropha curcas* L. Seed experiment results also showed highly significant differences between all seed treatment combinations. From the results and observations obtained, dry seeds using silt-loam or sand enhanced *J. curcas* root establishment while compost media was best for shoot performance. For commercial multiplication of Jatropha plantation asexual propagation is recommended.

المستخلص:

أجريت تجربتان في مشتل كلية الدراسات الزراعية - جامعة السودان للعلوم والتكنولوجيا - شمبا ت – السودان . الأهداف الرئيسة كانت لتقييم وسائل اكثار نبا ت الجاتروفا في أوساط تجذير مختلفة ، هرمون IBA ومعاملات بذرة. نفذت التجربتان في موسمين 2012 و2013 . التجربة الأولي كانت عن التكاثر الجنسي باستعمال بذور جافة أو مغمورة في الماء وبذور مكسورة القصرة في أوساط تجذير مختلفة. التجربة الثانية كانت لدراسة عقل مختلفة الأطوال في أوساط تجذير مختلفة وهرمون. القياسات للجزء الخضري والجذري هي : عدد وأطوال الجذور، سمك الجذر الوتدي والساق، عدد الأوراق وعدد وأطوال الأفرع. أسفرت نتائج العقل عن أن هنالك اختلافات معنوية تحت مستوي معنوية 5% ما بين طول العقلة ، تركيز الهرمون ووسط التجذير علي جميع معدلات القياسات. من خلال النتائج المتحصل عليها ينصح باستعمال عقل بطول 40 سنتيمترا مع تركيز هرمون IBA 313 ملجم/ لتر ماء في الطمي كوسط تجذير أسفرت عن تكوين جذور أفضل لتقنية اكثار الجاتروفا بكميات كبيرة. تجربة البذور أسفرت أيضا عن اختلافات معنوية كبيرة بين جميع المعاملات. فمن النتائج و الملاحظات المحرزة، أن البذور الجافة في الطمي أو الرمال كوسطي تجذير شجعتا بقوة تأسيس الجذور بينما الكمبوست كوسط تجذير هو الأفضل للنمو الخضري. للتكاثر التجاري لزراعة الجاتروفا ينصح بالاكثار الخضري.

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