

**Sudan University of Science and Technology**  
**College of Graduate Studies**

**Evaluation of growth and yield of two groups of indeterminate  
tomato (*Lycopersicon esculentum* Mill.) under cooled plastic house  
conditions**

تقييم النمو والإنتاجية لنوعين من أصناف الطماطم غير محدودة النمو  
تحت ظروف الصوب البلاستيكية المبردة

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## **DEDICATION**

**I dedicate this work to:**

**My father**

**Mother,**

**Sisters,**

**Brothers,**

**And Friends.**



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## ABSTRACT

This study was conducted at Eilafon Area, Bahri Governorate, Khartoum State, under cooled plastic houses conditions, with the objective of evaluating the adaptability and productivity of six indeterminate tomato cultivars. Normal and cherry tomato varieties were tested. The normal varieties were Chanoa, Merel, Sensie and Yusra, and the cherry varieties were Tomi and Elitro. The study was conducted during summer season 2007 in two different locations. The parameters assessed in this study were plant height (cm), number of leaves/plant, number of internodes/plant, number of clusters/plant, number of flowers/inflorescence, number of fruits/cluster, number of fruits/square meter, fruits weight/meter square, and fruit diameter (mm). The results showed that Merel cultivar had the highest plant height and highest number of leaves and internodes per plant, while Sensie cultivar produced the highest number of branch/plant. The cultivars, Yusra and Chanoa recorded the highest number of fruit clusters, while cultivars Merel, Sensie and Chanoa recorded the highest number of flowers and fruits per cluster. Chanoa cultivar recorded the highest number of fruits per square meter. Regarding productivity, Chanoa exhibited the highest productivity (256.3 t/ha) followed by Yusra (241.3 t/ha). Yusra cultivar recorded the highest fruit diameter (60- 70mm). In the cherry group, Elitro cultivar (247.5 t/ha) showed highest growth and yield parameters compared to Tomi cultivar (206.3 t/ha). However, the productivity of both Elitro and Chanoa was almost similar. However, since Chanoa is a normal sized tomato it might have economical advantage over Elitro in local markets as cherry tomato cultivars are not of similar popularity.

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#### الخلاصة

أجريت هذه الدراسة في العيلفون محافظة بحري ولاية الخرطوم تحت ظروف البيوت البلاستيكية المبردة لتقييم تأقلم وإنتاج أصناف طماطم غير محدودة النمو. أصناف عادية وأصناف جيري. الأصناف العادية جنوة، ميرل، سينسي، يوسرا، والأصناف الجيري، تومي والترو في صيف 2007 في موقعين، أخذت مقاييس النمو والإنتاج: ارتفاع النباتات، عدد الأوراق و السلاميات في النبات، عدد العناقيد الزهرية في النبات، عدد الأزهار في العنقود الزهري، عدد الثمار في العنقود، عدد الثمار في المتر المربع، وزن الثمار في المتر المربع، قطر الثمرة. قيمت القياسات الخضرية والإنتاج للأصناف العادية، كان الصنف ميرل الأكثر ارتفاعا، وعدد أوراق، وعدد سلاميات بينما كان الصنف سينسي أكثر تفرعا، الأصناف جنوة ويوسرا سجلا أكبر عدد من العناقيد بينما الأصناف ميرل وسينسي و جنوة سجلا أكبر عدد من الأزهار والثمار في العنقود، كما سجل الصنف جنوا اعلي إنتاجية (4 و 256 طن/للهكتار ) تلاه الصنف يوسرا (241.3 طن/للهكتار)، كما سجل الصنف يسرا أكبر قطر للثمار (60-70 ملم) أما الأصناف الجيري فقد تفوق الصنف الترو (5 و 247 طن/للهكتار) علي تومي (3 و 206 طن/للهكتار) في النمو والإنتاجية. الصنف جنوا من الأصناف العادية والصنف الترو من الأصناف الجيري تساويا في الإنتاجية مع اختلاف حجم الثمار. ومع ذلك فإن الصنف جنوا ذو الثمار العادية يعتبر الأفضل في السوق المحلي لدي المستهلكين من الصنف الترو ذو الثمار الصغيرة.