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**Title of Thesis:** Effect of Cattle Manure, Active Dry Yeast and Humic substances on The Growth, Yield and Chemical Constituents of *Oenothera biennis* Plant.

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### ABSTRACT

This study was conducted at the farm of the Medicinal and Aromatic Plants Research Department in El-Kanater El-Khaireya, Kalyubeia Governorate, Horticulture Research Institute and Ornamental Horticulture Department, Agriculture Faculty, Cairo University, during the two successive seasons of 2012/2013 and 2013/2014. A field experiment was carried out to study the effect of cattle manure at the rates of 15 or 30 m<sup>3</sup>/fed., active dry yeast at 4 or 8 g/l water, humic substances at 1 l/fed., or combinations of these treatments, on the growth, seed yield, oil productivity, fatty acid content, germination of seeds and chemical constituents of evening primrose (*Oenothera biennis*), compared to those obtained with the recommended dose of inorganic NPK fertilization [150 kg fed.<sup>-1</sup> ammonium nitrate (33%), 60 kg fed.<sup>-1</sup> calcium superphosphate (15.5%) and 60 kg fed.<sup>-1</sup> potassium sulphate (48%)]. The obtained results showed that the pair combination of cattle manure at the rate of 30 m<sup>3</sup>/fed. and humic substances 1L/fed. increased values of plant growth and seed yield parameters as well as chemical constituents (viz. chlorophyll a, b and carotenoid contents in fresh leaves and N, P, K, protein, total carbohydrate and total phenol contents in seeds). Also, the highest values of plant growth, yield parameters (viz. plant height, number of branches/plant, fresh and dry weights/plant, number of capsules/plant, seed yield/plant, seed yield/fed., oil percentage, oil yield per plant and oil yield per fed.) and chemical constituents (viz. chlorophyll a, b and carotenoid contents in fresh leaves and N, P, K, protein, carbohydrate,  $\gamma$ -Linolenic acid and total phenol content in seeds). were obtained with using the triple combination of cattle manure at 15 m<sup>3</sup>/fed., yeast at 8 g/L water and humic substances at 1 L/fed.

**Key words:** Evening primrose (*Oenothera biennis*), cattle manure, active dry yeast, humic substances.

اسم الطالب: سارة ناجى عبد الخالق  
عنوان الرسالة: تأثير سماد الماشية والخميرة الجافة النشطة والمواد الدبالية على النمو والمحصول والمكونات الكيميائية لنبات الأونثرا.  
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### المستخلص العربي

أجريت هذه الدراسة في مزرعة التجارب بقسم بحوث النباتات الطبية والعطرية بالقناطر الخيرية (محافظة القليوبية)، معهد بحوث البساتين، مركز البحوث الزراعية، الدقى، الجيزة، خلال الموسمين المتتاليين ٢٠١٢/٢٠١٣ و ٢٠١٣/٢٠١٤. أجريت هذه التجربة الحقلية لدراسة تأثير كل من سماد الماشية بمعدل ١٥ و ٣٠ م<sup>٢</sup>/الفدان، الخميرة الجافة النشطة بمعدل ٤ و ٨ جرام/لتر ماء والمواد الدبالية بمعدل ١ لتر/فدان والمزج بينهم على نمو محصول البذرة وإنتاج الزيت ومحتوى الأحماض الدهنية ونبات البذور والمركبات الكيميائية لنبات الأونثرا مقارنة بالجرعة الموصى بها من السماد الغير عضوى NPK [نترات الأمونيوم (٣٣ %) بمعدل ١٥٠ كجم/فدان، ٦٠ كجم/فدان سوبر فوسفات الكالسيوم (١٥,٥ %) و ٦٠ كجم/فدان من سلفات البوتاسيوم (٤٨%)]. وقد أوضحت النتائج أن المعاملة الثنائية (سماد الماشية بمعدل ٣٠ م<sup>٢</sup>/الفدان والمواد الدبالية ١ لتر/فدان) أدت الى زيادة معدل نمو النبات ومحصول البذرة والمركبات الكيميائية (محتوى الكلورفيل أ، ب و الكاروتينات فى الأوراق الطازجة، محتوى النتروجين والفوسفور والبوتاسيوم والبروتين والكاربوهيدرات ومحتوى الفينولات فى البذور) وعلى جانب آخر وجد أن أعلى قيم لصفات نمو النبات والمحصول (طول النبات، عدد الأفرع/النبات، الوزن الطازج والجاف، عدد الكبسولات/النبات، محصول البذرة/النبات ومحصول البذرة/الفدان)، وكذلك نسبة الزيت ومحصول الزيت/النبات ومحصول الزيت/الفدان والمركبات الكيميائية (محتوى الكلورفيل أ، ب و الكاروتينات فى الأوراق الطازجة، محتوى النتروجين والفوسفور والبوتاسيوم والبروتين والكاربوهيدرات وحامض الجاما-الينولنيك ومحتوى الفينولات فى البذور) تم الحصول عليها من تطبيق المعاملة الثلاثية سماد ماشية بمعدل ١٥ م<sup>٢</sup>/فدان، الخميرة الجافة بمعدل ٨ جرام/لتر ماء و المواد الدبالية بمعدل ١ لتر/فدان.

الكلمات الدالة: زهرة الربيع المسائية، *Oenothera biennis*، سماد الماشية، الخميرة الجافة النشطة، المواد الدبالية.

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