

Growth and Runner Plants Production of 'Maehyang' Strawberry as Affected by Application Method and Concentration of IBA

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출처 (Source)	한국원예학회 학술발표요지 , 2019.10, 191-191(1 pages) HORTICULTURE ABSTRACTS , 2019.10, 191-191(1 pages)
발행처 (Publisher)	한국원예학회 Korean Society For Horticultural Science
URL	http://www.dbpia.co.kr/journal/articleDetail?nodeId=NODE09263806
APA Style	Heesung Hwang, Hyeonwoo Jeong, Hyeri Lee, Hyeongyu Jo, Seungjae Hwang (2019). Growth and Runner Plants Production of 'Maehyang' Strawberry as Affected by Application Method and Concentration of IBA. 한국원예학회 학술발표요지, 191-191
이용정보 (Accessed)	이화여자대학교 203.255.***.68 2020/05/18 03:56 (KST)

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for height suppression of seedling. Seeds of watermelon (*Citrullus vulgaris* Schrad. 'Sambock Honey') were sown in 40-hole plug trays (54 × 27.5 × 5 cm) filled with a commercial medium. Wind treatment were set with 1, 2 or 4 m·s⁻¹ (average wind speed range at a growing point on seedling in the middle of the tray) and treatment time were 4, 6, and 10 hours per day. Non-treatment and 150 mg·L⁻¹ diniconazole treatment were used as the control. The air circulation fan used for wind stimulation. The plant height was affected by wind treatments, in 4 m·s⁻¹ wind speed, the plant height was decreased as the treatment time increased. The leaf area was increased in 1 and 2 m·s⁻¹ wind speed treatment and decreased in 6 and 10 hours per day of 4 m·s⁻¹ wind speed treatment. The dry weight of shoot and compactness were also increased in wind treatment. Chlorophyll fluorescence (Fv/Fm) was not significantly difference in wind treatment. Photosynthesis rate was the greatest in 4 and 6 hours per day of 1 m·s⁻¹ wind speed treatment. In conclusion, 1 m·s⁻¹ wind speed treatment has not affected on growth retardant of watermelon plug seedling, however, increased the photosynthesis, and 4 m·s⁻¹ wind speed has affected on height suppression of watermelon plug seedling. (This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT) (No. 2018R1D1A1B07046858).)

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295

P-5

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This study was conducted to examine the effect by application method and concentration of the indole-3-butyric acid (IBA), which is auxin-based plant growth regulator, on the growth and runner plants production of strawberry (*Fragaria × ananassa* Duch. cv. Maehyang) in the greenhouse. The seedlings of strawberry were transplanted in the pot (150 × 135 × 90 mm) filled with coir medium on April 12, 2019. The IBA was applied with a foliar spray or drench as 50, 100, 150, and 200 mg·L⁻¹ (50 mL per plant), respectively. The treatment was started on April 29, 2019. The foliar spray and drench treatment of IBA were repeated at 2-week intervals for 9 weeks from the start date of treatment. At 9 weeks after treatment, the growth of mother plants such as the petiole length, number of leaves, and dry weight of shoot was the lowest in the control. The number of runner plants showed a tendency to decreased in the foliar spray. There was not significantly difference in the fresh and dry weight of the first and second runner plants. But, in the

third runner plants, the fresh and dry weight were the heaviest in the drench with 100 mg·L⁻¹. Some physiological disorder was occurred over 40% in the drench with 150 mg·L⁻¹, and the foliar spray with 100, and 200 mg·L⁻¹. Therefore, when considering the physiological disorder and growth of third runner plants, the drench with the 100 mg·L⁻¹ was the better application method and concentration of IBA treatment for growth of the third runner plants and runner plants production of strawberry. (This research was supported by the Technology Development Program for Agriculture and Forestry, Ministry for Food, Agriculture, Forestry and Fisheries, Korea (Project No. 315004-5).)

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296

P-5

코이어 배지조성과 급액횟수가 배액 EC 및 토마토 생육에 미치는 영향

Effect of Coir Substrate Composition and Irrigation Method on EC of Drainage and Growth of Tomato in Hydroponics

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최근에 우리나라 수경재배 배지로 가장 많이 이용되고 있는 코이어 배지는 코코넛 열매의 껍질을 이용하여 만든 것으로 친환경적인 장점이 있어 사용 면적이 지속적으로 증가하고 있다. 그러나 배지의 크기나 조성이 규격화되지 못하고, 재배자의 요구에 따라 주문 생산되고 있어 배지특성을 고려한 급액관리가 필요하기 때문에 배지 특성에 따른 합리적인 수분 관리 조건을 제시하고자 하였다. 더불어 유기물 배지인 코이어는 양분을 흡착 및 배출하기 때문에 근권의 EC관리도 매우 중요해서 제한된 근권부를 이용하는 수경재배에서 공급된 배양액의 이용효율을 최대화하기 위한 근권부 관리 기술을 개발하고자 하였다. 대과종 토마토 SV0339TG(팜한농, 대한민국) 품종을 파종 후 35일 경과한 9월 7일에 정식하였다. 칩과 더스트 비율이 100 : 0, 70 : 30, 50 : 50, 30 : 70로 다른 4가지 조성의 코이어 배지를 이용하였다. 네덜란드 온실작물연구소(PBG) 토마토 배양액 조성 16.0 NO₃-N, 1.2 NH₄-N, 4.5 P, 9.5 K, 10.8 Ca, 4.8 Mg, 8.8 S(me·L⁻¹)을 이용 10월 23일까지 모든 처리에 동일하게 급액하였다. 10월 24일부터 1일 전제 급액량은 동일하게 하고 처리별로 급액횟수를 각각 달리하여 4처리로 시험을 수행하였다. 급액제어는 타이머 방식을 이용하였으며 각각 1분, 2분, 3분, 4분으로 달리했으며, 점적기의 1분당 급액량은 35mL였다. 1일 급액량은 계절의 변화와 작물의 생육정도에 따라 발생하는 평균 배액량을 고려하여 조정하였다. 10월 24일 - 11월 10일은 1일 총 32분, 11월 11일 - 11월 23일은 24분, 11월 24 - 2018년 2월 8일은 32분, 2월 9일 - 시험 종료는 48분으로 급액하였다. 급액의 EC는 정식 후부터 1.8dS·m⁻¹로 공급하다가 12월 27일부터 2.0dS·m⁻¹로 공급하여 배액량과 배액의 EC를 조사하였다. 배지조성과 1회 급액량에 따른 배액량은 배지조성에 따른 차이는 뚜렷하지 않았으나, 1회 급액량에 따른 차이가 뚜렷하여 1회 급액량이 많은 처리일수록 배액량이 높은 경향을 나타내었다. 특히 소량 다