

Effect of Different Factors on Superovulation of Anhui White Goat

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Abstract: To obtain more oocytes from Anhui white goat for transgenic study, the effects of season, dornors' pregnancy and the source of CIDR on superovulation in Anhui white goat were investigated. The results showed that when synchronized with domestic CIDR, average number of ovulated oocytes and colleted fertilized oocytes per donor were 15.0 ± 7.62 and 14.6 ± 7.88 respectively, and fertilization rate was 97.3%, while synchronized with imported CIDR, average number of ovulated oocytes and colleted fertilized oocytes per donor were 11.0 ± 5.38 and 10.8 ± 5.16 respectively, and fertilization rate was 98.2%, there was no significant difference between the two groups ($P > 0.05$); Average number of collected oocytes per donor were 13.71 ± 6.28 , 16.54 ± 7.43 and 13.95 ± 6.15 respectively when superoulated in spring, autumn and winter, there was no significant difference between any seasons ($P > 0.05$); Average number of ovulated oocytes in pregnant and nonpregnant dornors were 14.0 and 15.2 respectively, there was no significant difference between two groups, but the fertilization rate of oocytes collected from pregnant dorors was lower than that of non-prenant dornors significantly ($P < 0.05$).

Key words: goat; superovulation; CIDR; season; pregnancy

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Control Effects of Several Kinds of Pesticides Against *Psylliodes attenuata* Koch in the Field

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Abstract: In order to screen the pesticide with better control effect against *Psylliodes attenuata* Koch to guide the industrial hemp production, taking six kinds of pesticides as experimental materials which were used to observe the field control effect. The results showed that the control effect of 30% Dimethacarb•Buprofezin was the best, the control effect for 1 day after applying was 90.48%. The control effect for 3, 7 and 14 d after applying had been all over 87.88%. And the control effect of 10% Acetamiprid was better which were 85.17%, 87.94%, 85.53% and 85.17% after applying for 1, 3, 7 and 14 d respectively. These two kinds of pesticides both displayed better availability and effectiveness, they could be used as suitable pesticides against *Psylliodes attenuata* Koch, and the security of hemp field was better.

Key words: pesticides; hemp; *Psylliodes attenuata* Koch; pharmacodynamics test

丹麦品氏托普基质对矮牵牛穴盘苗 发芽和生长的影响

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摘要:为实现矮牵牛的大规模工厂化育苗,研究了不同基质对矮牵牛种子发芽和幼苗生长的影响。结果表明:与素土和普通草炭基质相比,丹麦品氏托普基质大大地缩短了矮牵牛生育期。丹麦品氏托普基质处理下的矮牵牛发芽率、发芽势和冠幅均高于其它两种基质处理,同时,植株感病率低,杂草生长减少。

关键词:矮牵牛;发芽率;发芽势;冠幅

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矮牵牛(*Petunia hybrida*)是茄科矮牵牛属一、二年生草本植物,是重要的观赏花卉之一,花色丰富,除用于营造花坛、花境外,也作盆栽花卉、吊篮或花钵栽培。矮牵牛花色丰富而艳丽,开花整齐,花期长,近年来在园林绿化中扮演着越来越重要的角色。通过大规模工厂化育苗使矮牵牛发芽率和花的品质都有所提高,选择穴盘的基质至关重要。

相关研究表明,基质物理性状良好,能更好地促进植物对水分和养分的吸收,而要想生产出高质量种苗,保证幼苗正常生长,很大一部分决定于基质的有机质和养分含量^[1-2]。国产泥炭多由莎草或芦苇等植物组成,虽然可以用作一般的种苗生产,但其各项指标与国外生产基质相差甚远,难以满足穴盘种苗生产地要求^[3]。多年的草花穴盘苗种植经验表明,国外进口基质的育苗效果明显优于以东北草炭为主的国产传统基质。进口丹麦品氏托普基质的主要成分是泥炭藓(有机质含量98%),有机质含量和营养成分高,能促进植物对养分的吸收,有利于植物生长。该试验研究了不同基质对矮牵牛梦幻白发芽情况和穴盘幼苗生长的影响,寻求提高矮牵牛种子发芽率,提高幼苗品质的优良基质,以促进矮牵牛在园林中的进一步推广应用。

1 材料与方法

1.1 材料

供试材料为矮牵牛梦幻白品系。

1.2 方法

1.2.1 试验设计 试验于2011年2月在哈尔滨市农业科学院育苗温室内进行。试验共设3个处理,处理A(对照)为素土:蛭石=2:1;处理B为普通草炭:蛭石=2:1;处理C为丹麦品氏托普基质:蛭石=2:1。每处理10个穴盘,每穴盘200穴。2月10日播种,每穴播种1粒。温室温度为20~25℃,湿度约为70%。

1.2.2 测定项目与方法 2月10日播种,播种后保持湿度。于出芽第1天开始记录出芽日期,调查发芽天数、发芽率、发芽势、株高、冠幅和植株感病率。

冠幅的测定:在每个穴盘中以对角线法取样,每盘取苗40株。

发芽率(%) = 发芽的种子数/所有种子数 × 100

发芽势(%) = 发芽高峰发芽种子数/所有种子数 × 100

2 结果与分析

2.1 不同基质对矮牵牛出芽进程的影响

由表1可知,处理C比处理A和处理B早出苗1d,处理A苗出齐需要9d,而处理B和C分别需要7d和6d。处理C丹麦品氏托普基质长到1叶1心只需15d,3叶1心需29d,5叶1心和7叶1心分别需38和48d,而国产草炭在这4个时期分别比丹麦品氏托普基质晚2、3、3和5d,

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而素土基质最晚。可见,丹麦品氏托普基质能够促进矮牵牛出苗,且生长快,国产草炭次之,素土最慢。若按整个穴盘期为 60 d 左右计算,丹麦品

氏托普基质可以比国产草炭和素土提前 5~8 d 上钵,可以大大的缩短矮牵牛幼苗在穴盘中的生育期。

表 1 不同基质对矮牵牛出芽进程的影响

Table 1 The effect of different substrates on germination process of <i>Petunia hybrid</i>						
处理 Treatments	生育期/月-日 Growth period					
	出苗期 Seedling emergence	齐苗期 Seedling Period	1 叶 1 心期 One leaf stage	3 叶 1 心期 Three leaves stage	5 叶 1 心期 Five leaves stage	7 叶 1 心期 Seven leaves stage
A(CK)	02-15	02-23	03-03	03-19	03-28	04-10
B	02-15	02-21	03-02	03-17	03-26	04-07
C	02-14	02-19	02-28	03-14	03-23	04-02

2.2 不同基质对矮牵牛发芽和感病情况的影响

种子发芽率越高,说明有生活力的种子越多。由表 2 可知,不同基质对矮牵牛发芽率影响不显著,处理 A(对照)、处理 B 和处理 C 矮牵牛发芽率分别为 89.4%,90.4%和 89.6%。处理 C 发芽

率比处理 A 仅高 0.2%。但对矮牵牛发芽势影响显著,处理 C 发芽势最高,为 71.8%,与处理 A 和处理 B 差异显著。可见,丹麦品氏托普基质能够提高矮牵牛种子的发芽势,使其出芽整齐一致。

表 2 不同基质对矮牵牛发芽和感病情况的影响

Table 2 The effect of different substrates on germination and disease infection of <i>Petunia hybrid</i>			
处理 Treatments	发芽率/% Germination rate	发芽势/% Germination energy	感病率/% Disease infection rate
A(CK)	89.4 a	62.3 c	9.3 c
B	90.4 a	67.6 b	7.6 b
C	89.6 a	71.8 a	0 a

注:不同小写字母表示差异达 0.05 显著水平。
Note: Different lowercases mean significant difference at 0.05 level.

处理 C 矮牵牛幼苗不感病,处理 A 和处理 B 幼苗感病率分别为 9.3%和 7.6%,与处理 C 差异显著。可见,丹麦品氏托普基质能够防止矮牵牛幼苗感病,减少穴盘苗感病带来的损失,提高植株生长质量。

2.3 不同基质对矮牵牛冠幅的影响

由图 1 可知,生长到 15 d 时,处理 C 矮牵牛穴盘苗冠幅略高于处理 B 和处理 A,但三者相差不多。随着生育时期的推进,处理间冠幅差值逐渐加大。矮牵牛幼苗生长到 30 d 时,处理 C 为 4.08 cm,处理 A 的矮牵牛穴盘苗冠幅为 3.02 cm,处理 B 为 3.37 cm,处理 C 比处理 A 和处理 B 分别高 35.10%和 21.07%。可见,丹麦品

氏托普基质能够使矮牵牛幼苗生长速度加快,冠幅增加。

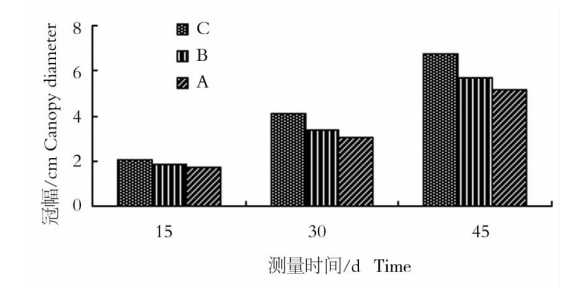


图 1 不同基质对矮牵牛冠幅影响
Fig. 1 The effect of different substrates on canopy diameter of *Petunia hybrid*

2.4 不同基质对矮牵牛杂草生长的影响

普通国产草炭和素土处理在幼苗穴盘生长中期,杂草数量较多,每200孔杂草数约为20~30孔,杂草率约为10%~15%,而丹麦品氏托普基质只有2~5个孔生长杂草。在幼苗生长到45 d左右时,3个处理都没有对穴盘苗进行施肥,此时素土和普通国产草炭种植的矮牵牛幼苗叶子明显发黄,而丹麦品氏托普基质幼苗叶子仍然为绿色,没有出现脱肥现象。可见,丹麦品氏托普基质能够促进矮牵牛幼苗生长,减少杂草生长。

3 结论与讨论

该试验结果表明,与素土和普通国产草炭基质相比,丹麦品氏托普基质能够使矮牵牛种子提前1 d发芽,6 d左右幼苗出齐,并大大地缩短了矮牵牛生育期;丹麦品氏托普基质处理下的矮牵牛发芽率和发芽势均高于其它两种基质处理,同时,降低植株感病率,增加矮牵牛冠幅,减少杂草生长率,幼苗生长到45 d时,叶子仍为绿色,没有出现脱肥现象。

保持水气平衡是生产标准化基质的关键,而国产草炭和进口草炭的水分运动特性不相同,使得以进口草炭为基质的穴盘育苗长势明显优于国产草炭^[4]。其原因可能是草炭土的植物来源主要是莎草或芦苇,它们都是较为高等的维管束植物,

一旦死亡,便会失去吸水能力,通气量明显下降^[5]。进口丹麦品氏托普基质主要为泥炭藓,泥炭藓中具有空腔的薄壁细胞,其功能是吸收和传输水分,泥炭藓同时还具有木质化的细胞壁,呈环状、螺旋状或盘状。这使得干燥后空腔细胞被空气充满的形状结构不会坍塌,因此即使变成泥炭后仍然能吸收和输送水分,另外进口基质中加入了湿化剂和保水剂,就使得进口丹麦品氏托普基质的保水性高于普通草炭,同时还可增加基质中的孔隙度和容重,因此丹麦品氏托普基质适于培育对水分要求较高的幼苗期矮牵牛和四季海棠等。

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Effect of Denmark's Substrate on Germination and Growth of *Petunia hybrida* Seedlings

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Abstract: In order to achieve the large-scale factory nursery for *Petunias hybrid* Vilm, the effect of different substrate with pure soil, vermiculite and peat on the germination and growth of seedlings were studied and compared. The results showed that the germination rate, germination energy and canopy diameter of *Petunia hybrid* treated with pindstrup sphagnum were higher than pure soil and peat, the disease infection rate and weed growth rate were decreasing.

Key words: *Petunia hybrid*; germination rate; germination tendency; canopy diameter