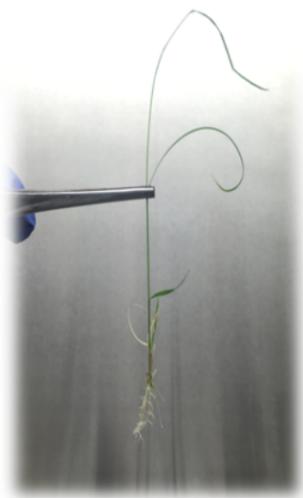


# Effects of Sterilization Treatments and Media Containing Growth Hormones on *Sporobolus pumilus*

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The saltmarsh cordgrass *Sporobolus pumilus*, formerly *Spartina patens*, is an integral component of saltmarsh ecosystems. It reduces salinity, anoxia, desiccation and thermal stress due to its extensive root proliferation and ability to shade the lower saltmarsh regions. Since this species is essential for the health of threatened saltmarsh ecosystems, the survival and success of these species is a top priority, making it a core seed bank species that is part of ongoing research at Acadia University.



The objectives of this research project were to analyze the abilities of *S. pumilus* to survive in various media containing the growth hormones 6-Benzyladenine (BA) and 1-Naphthaleneacetic acid (NAA), and to explore different sterilization techniques.

## Sterilization Treatments

1.50% alcohol; 15min agitation in 20% bleach  
 2.50% alcohol; 20 min agitation in 20% bleach  
 3.50% alcohol; 15min agitation in 30% bleach  
 4.50% alcohol; 20 min agitation in 30% bleach  
 Each sterilization treatment was divided into three groups and placed in either Agar only media, media containing 10mL/L of Plant Preservative Matter (PPM) followed by Agar only, or 10 mL/L PPM followed by 1mL/L PPM then Agar only

## Media Treatments

1.½ MS & Agar only  
 2.½ MS & Agar with 0.2mg/L BA  
 3.½ MS & Agar with 0.2mg/L NAA  
 4.½ MS & Agar with 0.2mg/L BA and 0.2mg/L NAA  
 Seeds remained in each media treatment for 1 week, then treated with 10 mL/L PPM for 3 days, 1mL/L PPM for 3 days, and then returned to their original media for 3 additional weeks

Initial germination results were 47%, 53%, 57%, and 58% for groups 1, 2, 3, and 4, respectively. Twenty-five plants from each group were selected and divided up to receive each media treatment.

Stems and roots were measured at the beginning and end of the media trial to examine the most beneficial media treatment for root and stem development.

Table 1. Total number of healthy, contaminated, and dead seedlings treated with one of four sterilization techniques and being grown in one of four different media treatments.

Sterilization Treatment	Seedling Result	Media #1	Media #2	Media #3	Media #4	Totals
1	Healthy	5	4	4	5	18
	Contaminated	2	2	1	0	5
	Dead	0	0	1	1	2
2	Healthy	1	3	3	1	8
	Contaminated	4	2	1	2	9
	Dead	1	2	2	3	8
3	Healthy	2	5	5	3	15
	Contaminated	4	1	2	3	10
	Dead	0	0	0	0	0
4	Healthy	2	2	4	0	8
	Contaminated	4	4	2	7	17
	Dead	0	0	0	0	0

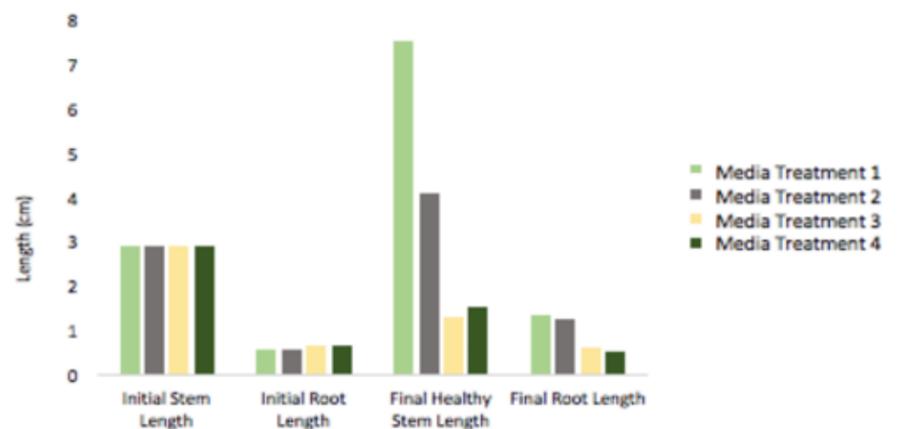


Figure 1. Mean stem and root lengths of *S. pumilus* before and after a sterilization treatment and being planted in four different types of media treatments.

## NOTABLE STERILIZATION FINDINGS

- Sterilization treatments did not fully prevent contamination
- Sterilization treatments 1 and 3 showed best contamination prevention
- Many lightly contaminated seedlings grew better than non-contaminated relatives

## NOTABLE MEDIA FINDINGS

- Media treatment 1 and 2 showed the best seedling growth
- Media treatment 3 and 4 showed detrimental effects
- BA and NAA did not enhance shoot or root growth in relation to the control group

