

# Study the Effect of Date Kernel Extract on Seed Germination and Growth

Aaya Sultan

Ahed Sultan

Supervisor: Fakhria Al Balushi

# Research Questions

- 1. Effect on seed germination
- 2. Effect on plant growth
- 3. Effect on soil properties
- 4. Can it filter gray water?

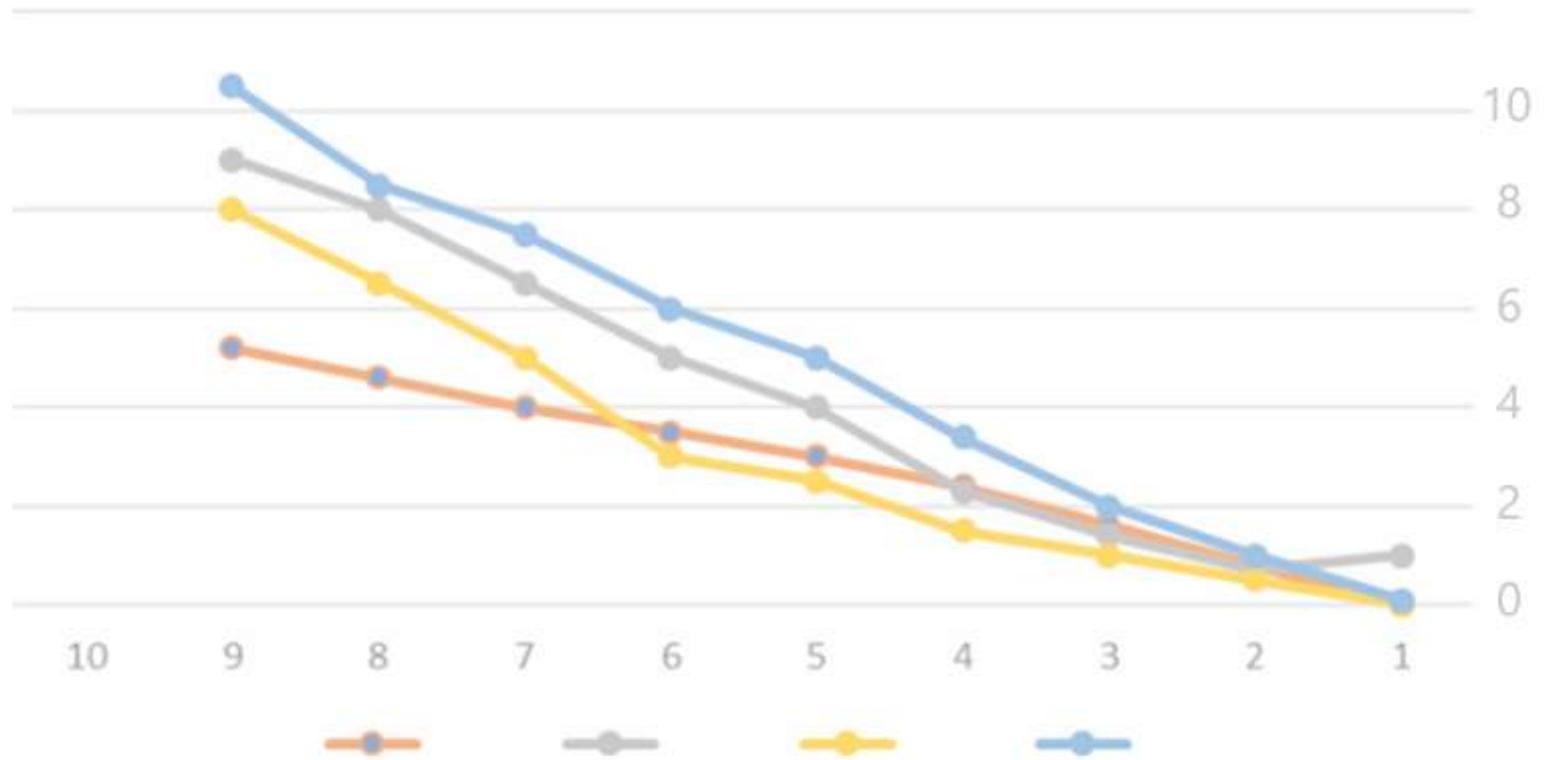
# Methodology

- • Preparation of date kernel extract
- • Different concentrations (0.1, 0.01, 1)
- • Pepper seeds tested
- • Soil and water analysis

Length data:

	<b>0.1</b>	<b>0.01</b>	<b>1</b>	<b>water</b>
First week	1	0.5	0.7	<b>0.8</b>
Second week	2	1	1.4	<b>1.6</b>
Third week	3.4	1.5	2.3	<b>2.4</b>
Fourth week	5	2.5	4	<b>3</b>
Fifth week	6	3	5	<b>3.5</b>
Sixth week	7.5	5	6.5	<b>4</b>
Seventh week	8.5	6.5	5	<b>4.6</b>
Eighth week	10.5	8	9	<b>5.2</b>

Table 1



Scheme 1

leaf count data:

	0.1	0.01	1	water
First week	-	-	-	-
Seconded week	2	2	2	2
Third week	2	2	2	2
Fourth week	3	2	2	2
Fifth week	4	3	3	3
Sixth week	4	4	4	4
Seventh week	5	4	5	4
week	6	5	5	5

Table 2

	0.1	0.01	1	water
First week	-	-	-	-
Seconded week	2	2	2	2
Third week	2	2	2	2
Fourth week	3	2	2	2
Fifth week	4	3	3	3
Sixth week	4	4	4	4
Seventh week	5	4	5	4
week	6	5	5	5

Soil chemical properties data:

Soil type	Soil before adding concentrate	Soil after adding concentrate
Acidity	7.8	6.8

Table 3

Included from these results that the acidity decreased after adding concentration

Soil chemical properties data:

Soil type	Soil before adding concentrate	Soil after adding concentrate
Acidity	7.8	6.8

Table 3

Water transparency data before and after filtration:

	Gray water	Water after filtration using date kernels
Transparency	80	120

Table 4

# Results – Germination

- Concentration 0.1 showed fastest and healthiest germination compared to others.

# Results – Growth

- Pepper plants watered with 0.1 concentration showed best leaf count and height growth.

# Soil Properties

- Soil acidity decreased after adding extract, indicating chemical impact on soil.

# Gray Water Filtration

- Date kernels successfully filtered gray water from turbid to transparent.

# Conclusion

- Date kernel extract is a natural stimulant for seed germination, fertilizer, and water filter.

# Acknowledgments

- Thanks to school administration, Sultan Qaboos University, and supervising teacher.