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## **ORIGINAL RESEARCH ARTICLES**

# To find the efficacy of crude extract from plants on germination of seeds

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#### Abstract

Germination is the growth of an embryonic plant contained within a seed; it results in the formation of the seedling. The seed of a higher plant is a small package produced in a fruit or cone after the union of male and female sex cells. All fully developed seeds contain an embryo and, in most plant species some store of food reserves, wrapped in a seed coat. Some plants produce varying numbers of seeds that lack embryos, these are called empty seeds, and never germinate. Most seeds go through a period of quiescence where there is no active growth; during this time the seed can be safely transported to a new location and/or survive adverse climate conditions until circumstances are favorable for growth. Quiescent seeds are ripe seeds that do not germinate because they are subject to external environmental conditions that prevent the initiation of metabolic processes and cell growth. Under favorable conditions, the seed begins to germinate and the embryonic tissues resume growth. In the present study, research was done to find the effect of crude extract of plants on germination of seeds. The plants which we have chosen may show the positive or negative effect on the germination of seeds. This has some importance in the rain fed areas. Even the specific plant extract soaked and sow in land may helpful to tolerate the drought conditions. Also, study is helpful to agriculture or agricultural industry. It helps to find out the anti sprouting property of the plants. However, further work is needed to improve this method.

Keywords: Germination; seed coat; Quiescent seeds; embryo

# Introduction

Germination demarcates the transition from the seed being dependent on food sources from the mother plant to an independent plant capable of taking up nutrients and growing independently. Hence, germination also makes up the last link in the chain of seed handling processes. Once germination has commenced, water, temperature and light stress can easily be fatal. Therefore, the best possible conditions during germination and establishment period are crucial. [1,2].

Once the seedlings have established themselves, some stress is gradually imposed thus adapting the plants to field conditions. For some species and in some environments it is possible to sow

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seeds directly in the field and hence omit the nursery phase. Direct sowing is likely to be less successful in terms of survival rate than planting because germinating seeds do not have the competitive advantage over weeds which established seedlings have. Yet, where seeds are relatively cheap, and nursery and planting costs high. Germination is determined by seed quality, pretreatment and germination conditions such as water, temperature, substrate, light, and freedom from pathogens [3].

Germination is the growth of an embryonic plant contained within a seed; it results in the formation of the seedling. The seed of a higher plant is a small package produced in a fruit or cone after the union of male and female sex cells. All fully developed seeds contain an embryo and, in most plant species some store of food reserves, wrapped in a seed coat. Some plants produce varying numbers of seeds that lack embryos, these are called empty seeds, and never germinate. [4] Most seeds go through a period of quiescence where there is no active growth; during this time the seed can be safely transported to a new location and/or survive adverse climate conditions until circumstances are favorable for growth [5]. Quiescent seeds are ripe seeds that do not germinate because they are subject to external environmental conditions that prevent the initiation of metabolic processes and cell growth. Under favorable conditions, the seed begins to germinate and the embryonic tissues resume growth, developing towards a seedling [6].

Table & Dianti Cruda avtract of augu	acanara Caadi Haraa aram
Table 1 Plant: Crude extract ofLeucu	saspera.Seeu. norse gram.

% OF EXTRACT	SPROUT LENGTH (in cms) FOR 5 DAYS	% OF GERMINATON (no. of seeds)
100% WATER	8.9	96
25%	4.7	82
50%	3.2	72
75%	1.5	63
100%	0.6	41
SOLUTION Seed:		
Green		
gram.		
% OF	SPROUT LENGTH	% OF GERMINATON
EXTRACT	(in cms) FOR 5 DAYS	(no. of seeds)
100%	9.2	92
WATER		
25%	4.1	71
50%	3.6	66
75%	1.8	55
100%	NIL	NIL
SOLUTION		
Seed:		
Jowar.		
% OF EXTRACT	SPROUT LENGTH	% OF GERMINATON
100%	(in cms) FOR 5 DAYS 10.2	(no. of seeds) 93
WATER	10.2	93
25%	5.8	84
50%	4.4	73
75%	3.6	61
100%	0.4	42
SOLUTION		
Seed: Millet.		
% OF	SPROUT LENGTH	% OF GERMINATON
EXTRACT	(in cms) FOR 5 DAYS	(no. of seeds)
100%	11.5	89
WATER		
25%	6.7	71
50%	5.2	53
75%	NIL	NIL
100%	0.7	36
SOLUTION		

 A
 B

 C
 D

 C
 D

 E
 D

 E
 D

 Figure 1 Plant:Crudeextract of Leucus aspera. Day 1.

 A=50%,C-75%,D-100% solution,E-100% solution.

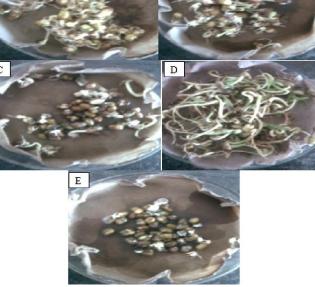


Figure 2 Plant:Crude extract of *Leucus aspera* Day 5. A-25%,B-50%,C-75%,D-100% solution,E-100% solution.

#### Table 2 Plant: Crudeextract of Vitexnegundo. Seed: Horsegram.

#### Table 3 Plant: Crude extract of Lantanacamara.

% OF

% OF GERMINATON (no. of seeds)

% OF GERMINATON (no. of seeds)

% OF GERMINATON (no. of seeds)

83 58 44 Nil Nil

GERMINATON (no. of seeds)

% OF         SPROUT LENGTH (in cms) FOR 5 DAYS         % OF GERMINATON (no. of seeds)         Seed:         Horse gram.           100%         9.2         87					
100%         9.2         87           WATER         25%         4.9         61         100% WATER         12.3           25%         2.3         52         25%         5.3         5.3           75%         NIL         NIL         NIL         50%         2.6         100% WATER         12.3           90%         2.3         52         50%         2.6         100% SOLUTION         NIL           Seed:         Green         75%         0.1         100% SOLUTION         NIL         75%         0.1         100% SOLUTION         NIL           Seed:         SPROUT LENGTH         % OF GERMINATON         75%         0.7         3           00%         2.4         53         100% WATER         9.8         10.2           9         89         25%         7.3         55%         7.5%         6.0           100%         2.4         53         100% SOLUTION         0.7         7.5%           9.8         100%         2.4         53         100% SOLUTION         0.7           25%         1.2         77         75%         6.0         0.2           9.00F         SPROUT LENGTH         00% OF GERMINATON				Seed:	Horse gram.
WATER         Description         Constraint         Constraint         Constraint         Constraint           25%         4.9         61         100% WATER         12.3         50%         26           75%         NIL         NIL         Solution         26%         5.3         50%         2.6           100%         NIL         NIL         50%         2.6         100% WATER         4.0           Seed:         Green         Green gram.         Seed:         Green gram.         Seed:         Green gram.           gram.         % OF         SPROUT LENGTH         % OF GERMINATON         9.8         99         25%         10.2           WATER         9.9         89         25%         10.2         50%         7.3           25%         4.2         77         75%         0.0         0.7         75%         1.7           100%         2.4         53         100% SOLUTION         0.7         10%         Seed:         Jowar.           Solution         NIL         NIL         NIL         % OF EXTRACT         SPROUT LENGTH         (in c. of seeds)         3.1           Jowar.         6.9         76         Seed:         Jowar.	EXTRACT	(in cms) FOR 5 DAYS	(no. of seeds)	% OF EXTRACT	SPROUT LENGTH
25%         4.9         61         100% WATER         12.3           50%         2.3         52         25%         5.3           100%         NIL         NIL         50%         2.6           100%         NIL         NIL         50%         2.6           Sociution         Seci         50%         2.6           Green         Green organ.         % OF EXTRACT         Green organ.           WATER         SPROUT LENGTH         % OF GERMINATON         100% WATER         9.8           100%         9.9         89         25%         10.2           25%         4.2         77         75%         0.0           26%         2.4         53         100% WATER         9.8           26%         1.7         44         Seed:         Jowar.           30%         2.4         53         100% WATER         9.2           Jowar.         NIL         NIL         % OF EXTRACT         SPROUT LENGTH           Seed:         Jowar.         100% WATER         9.2         2.6           Jowar.         NIL         NIL         % OF EXTRACT         SPROUT LENGTH           Soof         5.9         75%		9.2	87		(in cms) FOR 5 DAYS
50%         2.3         52         25%         5.3           75%         NIL         NIL         50%         2.6           100%         NIL         50%         2.6           SOLUTION         Seed:         Green         Green gram.           % OF         SPROUT LENGTH         % OF GERMINATON         Seed:         Green gram.           % OF         SPROUT LENGTH         % OF GERMINATON         100% WATER         9.8           25%         4.2         77         75%         10.2           50%         7.3         50%         7.3         6.0           50%         2.4         53         100% SOLUTION         0.7           25%         4.2         77         75%         6.0           50%         1.7         44         Seed:         Jowar.           Solution         NiL         NiL         % OF EXTRACT         gram.           Jowar.         %         9.9         80         25%         4.1           Solution         NiL         NiL         % OF EXTRACT         Jowar.         9.2           Jowar.         100%         Solution         80         75%         2.6           Mater <td></td> <td>49</td> <td>61</td> <td>100% WATER</td> <td>12.3</td>		49	61	100% WATER	12.3
75%         NIL         NIL         NIL         Solution         Section					
SOLUTION Seed:         100% SOLUTION Seed:         NIL Green gram.           gram. gram. gram.         % OF SPROUT LENGTH (in cms) FOR 5 DAYS         % OF GERMINATON (no. of seeds)         % OF EXTRACT         SPROUT LEGTH (in cms) FOR 5 DAYS           100%         9.9         89         25%         10.2           25%         4.2         77         75%         0.0           50%         2.4         53         100% SOLUTION         0.7           Seed:         Jowar.         100% WATER         9.2           Jowar.         NIL         % OF SPROUT LENGTH         % OF GERMINATON         50%         3.1           100%         8.0         85         75%         2.6         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.         100% WATER         9.2           20%         4.1         100% SOLUTION         0.4         25%				50%	
Sted:         Seed:         Green gram.         Green gram.           % OF         SPROUT LENGTH         % OF GERMINATON         % OF EXTRACT         SPROUT LEGTH (in cms) FOR 5 DAYS           % OF         SPROUT LENGTH         % OF GERMINATON         100% WATER         9.8           100%         9.9         50%         7.3           25%         4.2         77         75%         6.0           50%         2.4         53         100% SOLUTION         0.7           75%         1.7         44         Seed:         Jowar.           Solution         NiL         NiL         NiL         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Jowar.         60         53         50%         7.3         55%         6.0           Solution         1.7         44         Seed:         Jowar.         9.2           Solution         50%         3.1         100% WATER         9.2           Jowar.         % OF         SPROUT LENGTH         % OF GERMINATON         25%         4.1           Solution         6.4         Seed:         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet. <tr< td=""><td>100%</td><td>NIL</td><td>NIL</td><td>75%</td><td>4.0</td></tr<>	100%	NIL	NIL	75%	4.0
Green gram.         % OF         SPROUT LENGTH         % OF GERMINATON         % OF EXTRACT         SPROUT LEGTH (in cms) FOR 5 DAYS           100%         9.9         89         25%         10.2           25%         4.2         77         75%         6.0           50%         2.4         53         100% SOLUTION         0.7           75%         1.7         44         Seed:         Jowar.           100%         NiL         NiL         NiL         % OF GERMINATON           Solution         0.7         75%         6.0           100%         NiL         NiL         Seed:         Jowar.           100%         NiL         NiL         NiL         % OF GERMINATON         25%           Sourt.         (in cms) FOR 5 DAYS         (no. of seeds)         50%         3.1           100%         8.0         85         75%         2.6           WATER         2.0         41         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Solutrion         0.2         33	SOLUTION			100% SOLUTION	NIL
gram.         (in cms) FOR 5 DAYS         (i	Seed:			Seed:	Green gram.
% OF         SPROUT LENGTH         % OF GERMINATON         100% WATER         9.8           100%         9.9         89         25%         10.2           WATER         25%         4.2         77         75%         6.0           50%         2.4         53         100% SOLUTION         0.7           75%         1.7         44         Seed:         Jowar.           900%         NIL         NIL         % OF GERMINATON         0.7           50%         2.4         53         100% SOLUTION         0.7           Seed:         Jowar.         % OF GERMINATON         % OF EXTRACT         SPROUT LENGTH           % OF         SPROUT LENGTH         % OF GERMINATON         25%         4.1           EXTRACT         (in cms) FOR 5 DAYS         (no. of seeds)         50%         3.1           100%         8.0         85         75%         2.6           WATER         2.0         41         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH           100%         0.2         33         100% WATER </td <td>Green</td> <td></td> <td></td> <td>% OF EXTRACT</td> <td>SPROUT LEGTH</td>	Green			% OF EXTRACT	SPROUT LEGTH
EXTRACT         (in cms) FOR 5 DAYS         (no. of seeds)         100% WATER         9.8           100%         9.9         89         25%         10.2           WATER         50%         7.3         50%         7.3           25%         4.2         77         75%         6.0           50%         2.4         53         100% SOLUTION         0.7           75%         1.7         44         Seed:         Jowar.           100%         NIL         NIL         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Jowar.         % OF         SPROUT LENGTH         % OF GERMINATON (no. of seeds)         25%         4.1           Solutrion         85         75%         2.6         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.         100% SOLUTION           20%         4.5         58         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS         100% OF SEXTACT         SPROUT LENGTH (in cms) FOR 5 DAYS           100%         0.2         33         100% WATER         2.6           100%         4.5         58         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           100%	gram.				(in cms) FOR 5 DAYS
100%         9.9         10.2           WATER         50%         7.3           25%         4.2         77         75%         6.0           50%         2.4         53         100% SOLUTION         0.7           75%         1.7         44         Seed:         Jowar.           100%         NIL         NIL         NIL         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Seed:         Jowar.         % OF GERMINATON         25%         4.1           EXTRACT         (in cms) FOR 5 DAYS         85         75%         3.1           100%         8.0         85         75%         2.6           WATER         200%         4.1         2.6           25%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           100%         0.2         33         33         00% WATER         6.4           25%         2.0         41         100% WATER         6.4           SoLUTION         5.1         81         100% SOLUTION         100% SOLUTION           % OF         SPROUT LENGTH	% ОF	SPROUT LENGTH	% OF GERMINATON		
WATER         Solution         50%         7.3           25%         4.2         77         75%         6.0           50%         1.7         44         Seed:         Jowar.           100%         NIL         NIL         NIL         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Seed:         Jowar.         6.9         100% WATER         9.2           % OF         SPROUT LENGTH         % OF GERMINATON         25%         4.1           100%         8.0         85         75%         2.6           WATER         25%         6.9         76         Seed:         Millet.           50%         4.5         58         75%         2.6           WATER         2.0         41         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH           100%         0.2         33         100% WATER         6.4           26%         6.9         75%         2.9         50%         2.4           75%         2.0         41         100% WATER         6.4	EXTRACT	(in cms) FOR 5 DAYS	(no. of seeds)		
25%         4.2         77         75%         6.0           50%         2.4         53         100% SOLUTION         0.7           75%         1.7         44         Seed:         Jowar.           100%         NIL         NIL         SPROUT LENGTH         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Seed:         Jowar.         100% WATER         9.2         4.1           Jowar.         100% WATER         9.2         4.1           Jowar.         100% WATER         9.2         6.4           Jowar.         100% WATER         9.2         6.4           Jowar.         100% WATER         9.2         6.4           Solution         0.4         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.           50%         4.5         58         75%         2.6           100% 0.2         33         33         00% WATER         9.2           Solution         0.2         33         100% WATER         2.9           % OF EXTRACT         In cms) FOR 5 DAYS         100% WATER         2.4           Solution         51         81         100% WATER	100%	9.9	89		
50%         2.4         53         100% SOLUTION         0.7           75%         1.7         44         Seed:         Jowar.           100%         NIL         NIL         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Seed:					
75%       1.7       44       Seed:       Jowar.         100%       NIL       NIL       NIL       Seed:       Jowar.         Seed:       Jowar.       % OF EXTRACT       SPROUT LENGTH (in cms) FOR 5 DAYS       100% WATER       9.2         % OF       SPROUT LENGTH       % OF GERMINATON       25%       4.1         EXTRACT       (in cms) FOR 5 DAYS       100% OF GERMINATON       25%       4.1         100%       8.0       85       50%       3.1         100%       8.0       85       75%       2.6         WATER       2.0       41       100% SOLUTION       0.4         50%       4.5       58       % OF EXTRACT       SPROUT LENGTH (in cms) FOR 5 DAYS         100%       0.2       33       33       00% WATER       6.4         25%       2.0       41       100% WATER       6.4         Seed: Millet.       % OF GERMINATON       50%       2.9       %         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         NUL       100% SOLUTION       44       100% SOLUTION       Ni         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4					
100%         NIL         NIL         NIL         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           Seed: Jowar.         % OF         SPROUT LENGTH (in cms) FOR 5 DAYS         % OF GERMINATON (no. of seeds)         100% WATER         9.2           % OF         SPROUT LENGTH (in cms) FOR 5 DAYS         % OF GERMINATON (no. of seeds)         25%         4.1           100%         8.0         85         75%         2.6           WATER         20         41         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           30         0.2         33         00% WATER         6.4           25%         2.9         % OF GERMINATON (no. of seeds)         50%         2.4           100%         5.1         81         100% SOLUTION NI         Ni           WATER         5.1         81         100% SOLUTION NI         Ni           Solution         5.1         81         100% SOLUTION Ni         Ni           WATER         4.2         59         Of Lantana camara.         Seed:Green gram.           50%         1.3         3					
SOLUTION       Image: Constraint of the second					
Seed:         Jowar.         % OF GERMINATON         100% WATER         9.2           % OF         SPROUT LENGTH         % OF GERMINATON         25%         4.1           EXTRACT         (in cms) FOR 5 DAYS         (no. of seeds)         50%         3.1           100%         8.0         85         75%         2.6           WATER         50%         4.5         58         75%         2.6           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH         (in cms) FOR 5 DAYS           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH         (in cms) FOR 5 DAYS           100%         0.2         33         33         100% WATER         6.4           Solution         0.2         33         100% WATER         6.4         25%           Solution         5.1         % OF GERMINATON         75%         Nil         Nil           100%         5.1         % OF GERMINATON         75%         Nil         Nil           WATER         2.2         59         Of Lantana camara.         50%         1.4           50%         1.7         45         Seed:Horse gram.         Seed:Green gram.           50%		NIL	NIL	% OF EXTRACT	
Jowar.         100% WATER         9.2           % OF         SPROUT LENGTH         % OF GERMINATON         25%         4.1           EXTRACT         (in cms) FOR 5 DAYS         (no. of seeds)         50%         3.1           100%         8.0         85         50%         3.1           100%         8.0         85         76%         2.6           WATER         25%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS         0.0           100%         0.2         33         100% WATER         2.9         50%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         0100% SOLU					(in cms) FOR 5 DAYS
% OF         SPROUT LENGTH         % OF GERMINATON         25%         4.1           EXTRACT         (in cms) FOR 5 DAYS         (no. of seeds)         50%         3.1           100%         8.0         85         50%         2.6           WATER         100% SOLUTION         0.4           25%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH (in cms) FOR 5 DAYS           100%         0.2         33         33         00% WATER         6.4           Seed: Millet.         25%         2.9         2.9         2.9         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         2.4           Socution         5.1         81         100% SOLUTION         Nil         Nil           WATER         25%         4.2         59         Of Lantana camara.         50%         1.7           50%         1.7         45         Seed:Horse gram.         Seed:Green gram.           50%         1.3         38         NIL <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
EXTRACT         (in cms) FOR 5 DAYS         (no. of seeds)         50%         3.1           100%         8.0         85         75%         2.6           WATER         100%         6.9         76         Seed:         Millet.           50%         4.5         58         % OF EXTRACT         SPROUT LENGTH           75%         2.0         41         (in cms) FOR 5 DAYS         (in cms) FOR 5 DAYS           100%         0.2         33         30         100% WATER         6.4           Socution         0.2         33         100% WATER         6.4         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4         100% SOLUTION         Nil           WATER         4.2         59         0f Lantana camara.         Nil         100% SOLUTION         Nil           SO%         1.7         45         Seed:Horse gram.         Seed:Green gram.         Seed:Green gram.           SOW					
100%       8.0       85       75%       2.6         WATER       25%       6.9       76       Seed:       Millet.         50%       4.5       58       % OF EXTRACT       SPROUT LENGTH (in cms) FOR 5 DAYS         100%       0.2       33       100% WATER       6.4         Seed: Millet.       25%       2.9       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         WATER       100% SOLUTION       Nil       Nil       100% SOLUTION       Nil         WATER       25%       4.2       59       Of Lantana camara.       Seed:Green gram.         50%       1.3       38       Seed:Horse gram.       Seed:Green gram.         50%       NIL       NIL       NIL       Seed:Green					
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25%       6.9       76       Seed:       Millet.         50%       4.5       58       % OF EXTRACT       SPROUT LENGTH (in cms) FOR 5 DAYS         100%       0.2       33       100% WATER       6.4         Seed: Millet.       25%       2.9         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         Karter       25%       2.9       2.4         Mono       5.1       81       100% SOLUTION       Nil         WATER       25%       4.2       59       Of Lantana camara.         50%       1.7       45       Seed: Horse gram.       Seed: Green gram.         50%       NIL       NIL       NIL       Seed: Horse gram.       Seed: Green gram.		8.0	85		
50%       4.5       58       % OF EXTRACT       SPROUT LENGTH         75%       2.0       41       (in cms) FOR 5 DAYS       100% WATER       6.4         Solution       25%       2.9       2.9       2.9       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         % OF       SPROUT LENGTH       % OF GERMINATON       50%       2.4         MATER       25%       4.2       59       Nil         100%       1.7       45       Seed:Horse gram.       Seed:Green gram.         50%       1.3       38       NIL       NIL       Seed:Horse gram.       Seed:Green gram.		6.0	76		***
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Seed: Millet.         25%         2.9           % OF         SPROUT LENGTH         % OF GERMINATON         50%         2.4           EXTRACT         (in cms) FOR 5 DAYS         (no. of seeds)         75%         Nil           100%         5.1         81         100% SOLUTION         Nil           WATER         25%         4.2         59         Of Lantana camara.           50%         1.7         45         Seed:Horse gram.         Seed:Green gram.           50%         NIL         NIL         NIL         Seed:Horse gram.         Seed:Green gram.		0.2	33		6.4
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50%         1.7         45         Seed:Horse gram.         Seed:Green gram.           75%         1.3         38         Integram.         Int		42	59	Of Lantana camara.	
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75% 1.3 38 100% NIL NIL SOLUTION	50%	1.7	45	Seed:Horse gram.	Seed:Green gram.
SOLUTION	75%	1.3	38		
SOLUTION	100%	NIL	NIL		
	SOLUTION			a act freah plant m	$(250  \mathrm{s})$ of each $\pi^{1}$

# Material and Methods

Materials required: Petridish, Distilled water ,Crude extract of plants, What man filter paper No. 1.

Pestle and mortar, Pipette and Measuring jar.

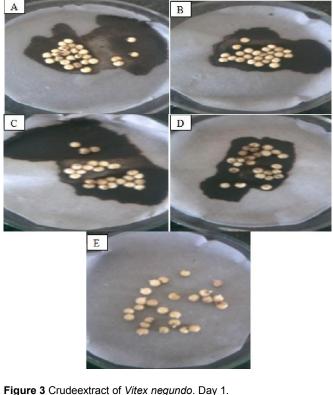
#### Methodology

To study the effect of plant extracts on the germination and initial growth of green gram, horse gram, ragi(millet) and jowar. The entire plants including roots and shoots were collected. In a set, fresh plant mass (250 g) of each plant species was unboiled/grounded in one liter water and kept for 3 days with stirring a regular interval. The extracts were filtered through Whatman filter paper No. 1. The filtrates were used as extracts of plants in the experiment.

The germination of green gram, horse gram, ragi (millet) and jowar seeds was studied by petridish method. Two sets of trials, each with unboiled crude extracts for each crop, was performed. Twenty five seeds of each species were placed in each Petridish lined with double layer of filter paper and treated with plant extracts, 15 mL per petridish for all seeds control set with distilled water was run simultaneously at every time. The filter papers were kept constantly moist with their respective plant extracts. The experiment was laid out in randomized complete block design with three replications at a room temperature  $28\pm1$  °C. Germination (%) and days required for complete germination was

Seed:	Horse gram.		
% OF EXTRACT	SPROUT LENGTH (in cms) FOR 5 DAYS	% OF GERMINATON (no. of seeds)	
100% WATER	8.3	94	
25%	8.4	72	
50%	5.9	61	
75%	NIL	NIL	
100% SOLUTION	2.4	36	
Seed:	Green gram.		
% OF EXTRACT	SPROUT LENGTH (in cms) FOR 5 DAYS	% OF GERMINATON (no. of seeds)	
100% WATER	10.6	93	
25%	6.7	86	
50%	2.3	71	
75%	3.4	59	
100% SOLUTION	1.3	47	
Seed:	Jowar.		
% OF EXTRACT	SPROUT LENGTH (in cms) FOR 5 DAYS	% OF GERMINATON	
100% WATER	7.6	(no. of seeds) 90	
25%	5.0	75	
50%	2.8	62	
75%	0.8	55	
100% SOLUTION	0.7	34	
Seed:	Millet.		
% OF EXTRACT	SPROUT LENGTH (in cms) FOR 5 DAYS	% OF GERMINATON (no. of seeds) 92	
100% WATER	6.6		
25%	3.2	77	
50%	2.4	61	
75%	2.2	48	
100% SOLUTION	NIL	NIL	
Plant: Crude extract ofAnisomeles indica. Seed:Horse gram.	Seed:Jowar.		

Table 4	Plant:Crude	extract of	Anisomeles	indica.
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A-25%,B-50%,C-75%,D-100% solution,E-100% solution.

recorded in each case. The linear growth of root and shoot were separately recorded, for all seeds after day1 to day5 after seed placing respectively. The collected data were analyzed. [7–10].

## **Results and Discussion**

The effect of crude extract of Leucus aspera, Vitex negundo, Lantana camara and Anisomeles indicawere studied for Horse gram, Green gram, Jowar and Millet. Here each plant extract solution ranging from 25% to 100% is treated with all seeds to know its effect, along with control (100% water). After the germination of seeds for 5 days, in 100% solution we can observe inhibition of growth. This inhibition may be caused due to some of the chemicals present in the plant extract. In the same way, for control we got a good response. In some cases, at 75% of crude extract may also inhibit the germination of seeds as same as in case of 100% extract. Also, the graphs indicate that the percentage of germination in control is more when compared to 100% of crude extract. In contrast to this some findings or others research results includes as follows: The ethyl acetate soluble fraction of the extract showed similar activity against these organisms. Similarly, the methanol extract at 1000 9g.ml



Figure 4 Plant:Crude extract of *Vitex negundo*. Day 5. A-25%,B-50%,C-75%,D-100% solution,E-100% solution.

and the ethyl acetate fraction at 50pg. m exhibited significant antioxidant activity in ferrous sulphate induced lipid per oxidation, 1, 1-diphenyl-2-pieryl-hydrazyl (DPPH), Hydroxyl radical and superoxide scavenging models [11]. In ethanomedicine of Dharwad district Karnataka, of the plants used in oral health care. Their survey revealed that 35 plants belonging to 26 families were being used to treat different types of oral ailments like toothache, plaque and caries, pyorrhea and aphthae. It was shown that Leucus aspera was used to treat toothache and cassia tora to treat plaque and caries [12]. Crude extracts from three green seaweeds (Cladophora dalmatica, Enteromorpha intestinalis, and Ulva lactuca) and the three red algae (Corallina mediterranea, Jania rubens, Pterocladia pinnate) were prepared. Their effects on germination, growth of seedlings, chlorophyll content and other metabolic activities of Vicia faba were investigated. The crude extract of C. dalmatica showed maximal activity, and it increased seed germination, length of main root and shoot systems and the number of lateral roots. All the crude extracts of seaweed increased protein content in root and shoot systems, total soluble sugars and chlorophyll content in leaves. The cytokinin content of the green algae was higher than that in red algae. Growth of seedlings of V. faba was stimulated but to dif-

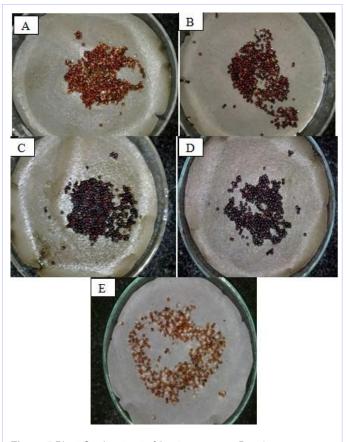
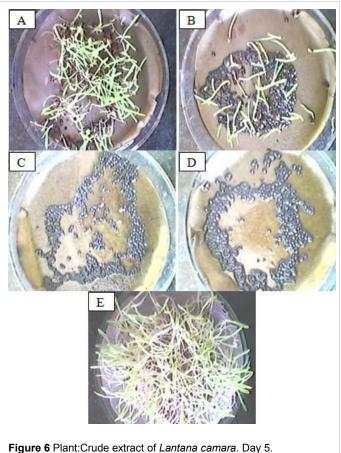


Figure 5 Plant:Crudeextract of *Lantana camara*.Day 1. A-25%,B-50%,C-75%,D-100% solution,E-100% solution.

ferent degrees [13]. A review of the literature on the evaluation of medicinal plant extracts shows that many studies into their antifungal activities have been carried out in recent years. Various research group have initiated antifungal screening programmes for plants used all over the world as anti-infectious agents in traditional medicine. Nineteen plant species from fourteen families used in traditional North American Indianmedicine were tested for their fungicidal (Cladosporium cucumerinum and Candida albicans)activity.1 Of the species investigated, nine were active against Cladosporium cucumerinum and nine against Candida albicans. A programme was designed for the pharmacological screening ofspecies used by the Mayan people in the highlands of Chiapas in southern Mexico to treatgastrointestinal and respiratory diseases. 2 It demonstrated that 63% of the botanical speciesshowed antifungal properties against Candida albicans [14]. Four alkaloids that have been isolated from A. millefolium; betaine, betonicine (= achilleine), choline (or choline chloride) and stachydrine (= leonucardine). A fifth alkaloid, trigonelline, has been detected by paper chromatography but not isolated. A sixth, homostachydrine (moschatine or N-



A-25%,B-50%,C-75%,D-100% solution,E-100% solution.

methyl piperidin-2-carboxyhc acid methylbetaine), has not been isolated fi-om A. millefolium, but from A. moschata Wulf [15].

# Conclusion

In the present study, research was done to find the effect of crude extract of plants on germination of seeds. The plants which we have chosen may show the positive or negative effect on the germination of seeds. This has some importance in the rain fed areas. Even the specific plant extract soaked and sow in land may helpful to tolerate the drought conditions. Also, study is helpful to agriculture or agricultural industry. It helps to find out the anti sprouting property of the plants. However, further work is needed to improve this method.

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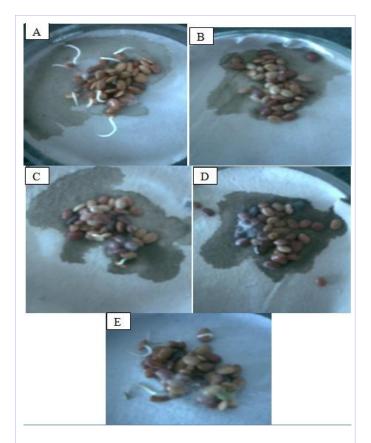
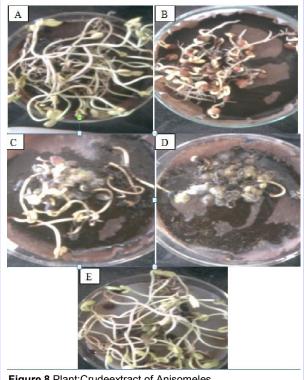


Figure 7 Plant:Crudeextract of Anisomeles *indica*.Day 1. A-25%,B-50%,C-75%,D-100% solution,E-100% solution.



**Figure 8** Plant:Crudeextract of Anisomeles *indica*. Day 5. A-25%,B-50%,C-75%,D-100% solution,E-100% solution.

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