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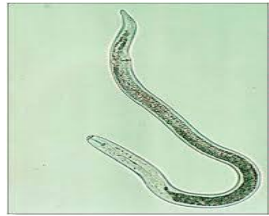
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Introduction



- Meloidogyne sp.* and *Pratylenchus sp.* are two of the most damaging genera on field and horticultural crops, accounting to annual global losses of approximately US\$ 157 billion



- Embelia schimperi* is one of the medicinal plants used traditionally for treatment of intestinal tape worm, dysmenorrheal, bacterial and fungal infections



- However, there seems to be little information available about the activity of *Embelia schimperi* extracts against nematodes

Methodology



1g of extract was dissolved in 10mls of 10% DMSO

Diluted with DMSO to acquire 25%, 50%, 75% and 100% concentration

- Hexane
- Dichloromethyl
- Ethanol

- 24, 48, 72 and 96 hours for eggs and 24, 48 and 72hrs for J2s
- Dead or alive J2s were determined using 1 N NAOH
- 3 replicates per treatment



Results

Table 1: Chemical profiles of *E. schimperi* crude extract

Extraction method	Maceration			Soxhlet			Ultrasonication		
	Hexane	DCM	Ethanol	Hexane	DCM	Ethanol	Hexane	DCM	Ethanol
Secondary metabolites									
Tannins	+	++	++	++	++	++	+	+	++
Alkaloids	-	-	+	+	+	+	+	+	+
Flavonoids	+	++	++	+	+	+	++	++	++
Terpenoids	-	-	-	-	-	-	-	-	-
Cardiac glycosides	-	-	-	-	-	-	-	-	-
Saponins	+	+	+	+	+	++	+	+	++
Phenolics	+	++	++	+	++	++	++	++	++
Steroids	-	-	-	-	-	-	-	-	-

Table 2: *Meloidogyne incognita* egg hatchability results

Plant crude extracts	24-h		48-h		72-h		96-h	
	Mean±SE	%	Mean±SE	%	Mean±SE	%	Mean±SE	%
Dimethyl sulphoxide (Control)	9.00±1.00a	45	12.00±1.00a	60	16.33±1.20a	81.67	19.67±0.33a	100
Ethanol g/ml								
0.025	3.67±1.45b	13.33	4.33±0.33b	25	9.00±1.15b	45	15.00±2.52ab	61.67
0.05	3.67±0.33b	13.33	4.00±0.58b	25	7.33±0.67bc	36.67	14.33±1.20ab	50
0.075	4.00±1.00b	10	3.33±0.33b	15	5.33±0.67bc	26.67	8.33±1.20b	33.33
0.1	3.00±0.58b	6.67	3.00±0.58b	11.67	3.67±0.33c	18.33	8.33±1.86b	23.33
Dichloromethane g/ml								
0.025	4.33±0.33b	21.67	12.00±1.00a	30	16.33±1.20a	51.67	19.67±0.33a	63.33
0.05	3.33±0.33bc	16.67	5.67±0.33b	18.33	10.33±2.03a	43.33	12.67±3.48ab	53.33
0.075	2.33±0.33bc	11.67	3.67±0.33b	21.67	8.67±1.45b	33.33	10.67±0.67b	46.67
0.1	1.67±0.33c	8.33	4.33±0.88b	13.33	6.67±1.76b	33.33	9.33±1.33b	38.33
Hexane g/ml								
0.025	2.67±0.33b	18.33	5.33±0.33b	20	13.33±2.19a	66.67	12.33±2.40b	75
0.05	2.67±0.33b	18.33	5.33±0.33b	20	13.67±1.20a	68.33	10.00±1.53ab	71.67
0.075	2.00±0.58b	20	3.00±0.58bc	16.67	8.00±1.53b	40	6.67±0.88ab	41.67
0.1	1.33±0.33b	15	2.33±0.33c	15	7.67±1.67b	38.33	4.67±0.33b	41.67

Table 3: *Pratylenchus zae* juvenile mortality

Plant crude extracts	24-h		48-h		72-h	
	Mean±SE	%	Mean±SE	%	Mean±SE	%
Dimethyl sulphoxide (Control)	0.33±0.33a	1.67	0.33±0.33a	1.67	0.33±0.33a	1.67
Ethanol g/ml						
0.025	1.00±0.58ab	10	6.67±0.67b	68.33	8.33±0.67b	88.33
0.05	1.00±0.58ab	21.67	8.33±0.33bc	83.33	8.67±1.45b	95
0.075	2.67±0.67ab	30	8.33±0.33bc	86.67	10.67±1.67b	100
0.1	3.33±0.33b	30	9.33±0.33c	85	11.00±0.58b	100
Dichloromethane g/ml						
0.025	2.33±0.33ab	10	11.00±0.58b	55	13.33±0.88b	66.67
0.05	3.33±0.88bc	16.667	12.33±0.33bc	61.67	13.67±0.88b	68.33
0.075	3.33±0.33bc	16.667	13.67±0.67cd	68.33	15.00±1.15bc	75
0.1	4.67±0.33c	23.333	15.33±0.33d	75	18.00±1.00c	90
Hexane g/ml						
0.025	2.33±0.33ab	5	13.67±1.86b	33.33	17.67±0.33b	41.67
0.05	4.33±0.33bc	5	16.67±1.33b	40	19.00±0.58bc	43.33
0.075	6.00±0.58c	13.333	17.33±0.67b	41.67	19.67±0.33c	53.33
0.1	6.00±0.58c	15	17.00±0.58b	46.67	19.67±0.33c	55

Conclusion

- Ethanol crude extracts exhibited high levels of nematicidal activity against *M. incognita* and *P. zae* compared to dichloromethane and hexane
- The results gave an insight of *E. schimperi* potential to control plant parasitic nematodes.
- Further comprehensive research should be conducted on other pathways, such as juvenile mortality and motility and the identification of the most active compounds in the plant extracts.

Acknowledgements