

James J M, Geethumol C U, Anilkumar A, Selvaraj G. Phytochemical screening, antibacterial and allelopathic effects of few invasive plants of Kerala. *Plant Science Today* 2018;5(4):175-181. <https://dx.doi.org/10.14719/pst.2018.5.4.408>

Supplementary Tables

Table 1. *Eupatorium odoratum* whole plant

Phytoconstituents	Test /Reagent	In Alcohol	In Acetone	In Chloroform
Alkaloids	Mayer's Test	+	+	-
	Hager's Test	+	+	-
	Wagner's Test	+	+	-
Terpenoids	Copper acetate Test	+	+	+
Proteins	Millon's Test	+	-	-
	Xanthoprotein Test	-	-	-
	Ninhydrin Test	-	+	-
Phytosterols	Salkowski's Test	+	+	-
	Liebermann Burchard Test	+	+	-
Saponins	Froth test	+	-	-
Flavonoids	Ferric chloride Test	+	+	-
	Lead acetate Test	+	+	-
Phenol	Lead acetate Test	-	+	-
Carbohydrate	Benedict's Test	-	-	-
Tannins	Ferric chloride Test	+	-	-
	Lead acetate Test	+	-	-
Anthocyanins	Con. H ₂ SO ₄ Test	-	-	-

Table 2. *Vernonia cinerea* whole plant

Phytoconstituents	Test /Reagent	In Alcohol	In Acetone	In Chloroform
Alkaloids	Mayer's Test	+	+	-
	Hager's Test	+	-	-
	Wagner's Test	+	-	-
Terpenoids	Copper acetate Test	+	+	-
Proteins	Millon's Test	-	-	-
	Xanthoprotein Test	-	-	-
	Biuret Test	-	-	-
Phytosterols	Salkowski's Test	-	-	-
	Liebermann Burchard Test	+	-	-
Saponins	Froth test	+	-	-
Flavonoids	Ferric chloride Test	-	-	-
	Lead acetate Test	+	-	-
Phenol	Lead acetate Test	+	-	-
Carbohydrate	Benedict's Test	-	-	-
Tannins	Ferric chloride Test	+	+	-
	Lead acetate Test	+	-	-
Anthocyanins	Con. H ₂ SO ₄ Test	-	-	-

Table 3. *Mikania micrantha* whole plant

Phytoconstituents	Test /Reagent	In Alcohol	In Acetone	In Chloroform
Alkaloids	Mayer's Test	-	-	-
	Hager's Test	-	-	-
	Wagner's Test	-	-	-
Terpenoids	Copper acetate Test	-	+	+
Proteins	Millon's Test	-	-	-
	Xanthoprotein Test	-	-	-
	Biuret Test	-	-	-
Phytosterols	Salkowski's Test	-	-	-
	Liebermann Burchard Test	-	-	-
Saponins	Froth test	+	-	-
Flavonoids	Ferric chloride Test	-	-	-
	Lead acetate Test	+	-	-
Phenol	Lead acetate Test	+	-	-
Carbohydrate	Benedict's Test	-	-	+
Tannins	Ferric chloride Test	+	+	-
	Lead acetate Test	+	-	-
Anthocyanins	Con. H ₂ SO ₄ Test	-	-	-

Table 4. *Tridax procumbens* whole plant

Phytoconstituents	Test /Reagent	In Alcohol	In Acetone	In Chloroform
Alkaloids	Mayer's Test	-	-	+
	Hager's Test	+	+	+
	Wagner's Test	+	+	+
Terpenoids	Copper acetate Test	+	+	+
Proteins	Millon's Test	-	-	-
	Xanthoprotein Test	-	-	-
	Biuret Test	-	-	-
Phytosterols	Salkowski's Test	-	-	-
	Liebermann Burchard Test	+	+	+
Saponins	Froth test	+	-	-
Flavonoids	Ferric chloride Test	-	-	-
	Lead acetate Test	-	-	-
Phenol	Lead acetate Test	-	-	-
Carbohydrate	Benedict's Test	-	-	-
Tannins	Ferric chloride Test	-	-	-
	Lead acetate Test	-	-	-
Anthocyanins	Con. H ₂ SO ₄ Test	-	-	-

Table 5. *Pilea microphylla* whole plant

Phytoconstituents	Test /Reagent	In Alcohol	In Acetone	In Chloroform
Alkaloids	Mayer's Test	-	-	-
	Hager's Test	-	+	-
	Wagner's Test	-	-	-
Terpenoids	Copper acetate Test	+	+	+
Proteins	Millon's Test	-	-	-
	Xanthoprotein Test	+	-	-
	Biuret Test	-	-	-
Phytosterols	Salkowski's Test	+	-	-
	Liebermann Burchard Test	+	+	+
Saponins	Froth test	+	-	-
Flavonoids	Ferric chloride Test	-	-	-
	Lead acetate Test	+	-	-
Phenol	Lead acetate Test	-	-	-
Carbohydrate	Benedict's Test	-	-	-
Tannins	Ferric chloride Test	-	-	-
	Lead acetate Test	+	-	-
Anthocyanins	Con. H ₂ SO ₄ Test	-	-	-

Table 6. *Cuscuta reflexa* whole plant

Phytoconstituents	Test /Reagent	In Alcohol	In Acetone	In Chloroform
Alkaloids	Mayer's Test	-	-	-
	Hager's Test	-	-	-
	Wagner's Test	-	-	-
Terpenoids	Copper acetate Test	+	-	-
Proteins	Millon's Test	-	-	-
	Xanthoprotein Test	+	-	-
	Biuret Test	-	-	-
Phytosterols	Salkowski's Test	-	-	-
	Liebermann Burchard Test	+	+	+
Saponins	Froth test	+	-	-
Flavonoids	Ferric chloride Test	+	+	-
	Lead acetate Test	-	+	-
Phenol	Lead acetate Test	+	-	-
Carbohydrate	Benedict's Test	-	-	-
Tannins	Ferric chloride Test	+	+	-
	Lead acetate Test	-	+	-
Anthocyanins	Con. H ₂ SO ₄ Test	-	-	-

Supplementary Figures



A. Control –All seeds germinated in distilled water.



B. *Eupatorium odoratum* fresh plant extract – No germination was recorded.



C. *Cuscuta reflexa* fresh plant extract - No germination was recorded



D. *Mikania micrantha* fresh plant extract – 12 seeds germinated out of 50 seeds selected



E. *Pilea microphylla* fresh plant extract - 16 seeds germinated out of 50 seeds selected for study

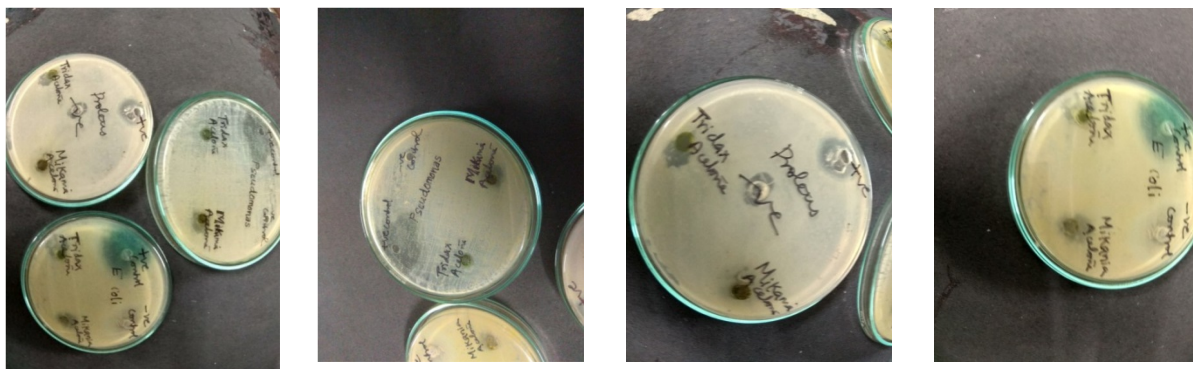


F. *Tridax procumbens* fresh plant extract - 28 seeds germinated out of 50 seeds selected for study



G. *Vernonia cinerea* fresh plant extract - 32 seeds germinated out of 50 seeds selected for study

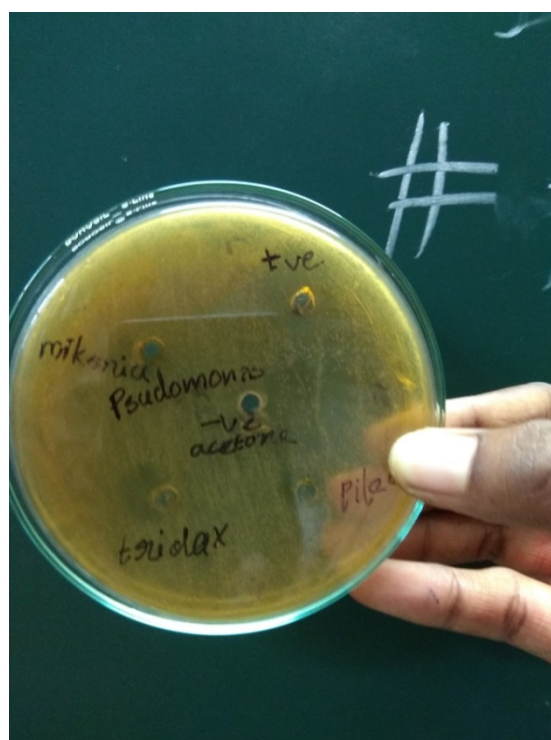
Figure 1. Allelopathic effect of invasive plants on seed germination of selected legume



- A. Against *E. coli*—*Tridax procumbens* acetone extract - 12 mm, *Mikania micrantha* acetone extract - 10 mm; Against *Proteus vulgaris* - *Tridax procumbens* acetone extract - 12mm, *Mikania micrantha* acetone extract - 15 mm; Against *Pseudomonas aeruginosa* - *Tridax procumbens* acetone extract - 7 mm, *Mikania micrantha* acetone extract - 13 mm



- B. *Eupatorium odoratum* acetone extract against *E. coli* - 20 mm, *Tridax procumbens* acetone extract against *E. coli* - 12mm



- C. *Mikania micrantha*, *Tridax procumbens* and *Pilea microphylla* acetone extract against *Pseudomonas aeruginosa* - 13 mm, 7 mm and 8 mm



D. *Cuscuta reflexa* acetone extract against *Proteus vulgaris* and *E. coli* – 7 mm, 0 mm and *Vernonia cinerea* acetone extract against *E. coli* and *Proteus vulgaris* – 11 mm, 9 mm



E. Zone of inhibition obtained only for *Eupatorium odoratum* alcohol extract against both *S. aureus* (5 mm) and *Proteus* (7 mm). *Eupatorium odoratum* alcohol extract against *Proteus vulgaris* (7 mm), negative control is 0 mm and positive control is 16 mm



F. *Tridax procumbens* alcohol extract against *Pseudomonas aeruginosa* (9 mm)



G. *Tridax procumbens* and *Vernonia cinerea* chloroform extract against *Pseudomonas aeruginosa* – 5 mm and 6 mm respectively



H. *Mikania micrantha*, *Tridax procumbens* and *Vernonia cinerea* chloroform extract against *E. coli* – 15 mm, 5 mm and 3 mm



I. *Mikania micrantha*, *Tridax procumbens* and *Pilea microphylla* - chloroform extract against *Proteus vulgaris* – 15 mm, 5 mm, 10 mm



J. *Mikania micrantha*, *Pilea microphylla* and *Vernonia cinerea* chloroform extract against *Proteus vulgaris* - 17 mm, 12 mm, 5 mm



K. *Cuscuta reflexa* chloroform and *Eupatorium odoratum* chloroform extract against *Pseudomonas aeruginosa* - 16 mm and 12 mm and *Proteus vulgaris* - 21 mm and 11 mm

Figure 2. Antibacterial effects of various Invasive plants against selected strains of bacteria