

EPILOBIUM EXTRACTS

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Class: Dicotyledons
Subclass: Rosidae
Order: Myrtales
Family: Onagraceae
Genus: *Epilobium*
Species: *angustifolium*, *hirsutum*, *parviflorum*, *palustre*, *rosmarinifolium*, *tetragonum*...

Perennial, indigenous plant, with a simple, erect stem, the leaves are scattered, lanceolate, sessile, smooth, subentire, with a marginal pellucid vein. The flowers are large, numerous, very showy, pink-purple, and in a long terminal spike or raceme.



CATEGORY	COMPOUND
Flavonoids	Mirycetin
	Quercetin
	Kaempferol
	Isomirycetin
	Isouercetin
Ellagitannins	Oenothein A
	Oenothein B
Fatty Acids	Linoleic acid
	Palmitic acid
	Stearic acid
Aromatic Acids	Gallic acid
	Ellagic acid
	Protocateic acid
	Cinnamic acid
	p-cumaric acid
	Caffeic acid
	Gentisic acid
	Ferulic acid
Chlorogenic acid	
Sterols	β -sitosterol and derivatives

THERAPEUTIC INDICATIONS

- Antinflammatory
- Analgesic
- Antifungal
- Antimicrobial
- Anti-diarrhoeal
- Anti-motility
- Anti-secretory

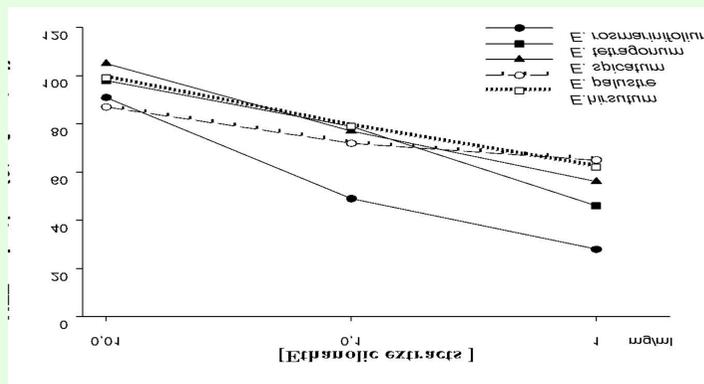
Used in folk medicine for centuries as a treatment for Benign Prostatic Hyperplasia (BPH).

METHODS

- To evaluate cell proliferation: MTT test, methyl[³H]thymidin incorporation assay, flow cytometry analysis.
- To characterize Oenothein B: HPLC.
- To determine total polyphenols: Folin Ciocalteu test.
- To assess apoptotic effect: TUNEL test and Hoechst staining.

PURPOSE

Different ethanolic extracts of *Epilobium* species were experimentally studied in order to investigate and estimate in particular a possible inhibitory effect on the cells growth for the treatment of BPH.



Effect of *Epilobium* extracts on proliferation of PZ-HPV-7 measured by MTT assay

Concentration of Oenothein B in different extracts of *Epilobium* species.

Extracts	[Oenothein B] (μ g/ml)
<i>E. rosmarinifolium</i>	46
<i>E. angustifolium</i> (Europe)	3
<i>E. tetragonum</i>	5
<i>E. angustifolium</i> (Canada)	134

RESULTS

Extracts of *Epilobium* inhibited DNA synthesis in human prostate normal cell line (PZ-HPV-7), *E. rosmarinifolium* is the most potent species in the antiproliferative effect. The active principle responsible for this inhibition has been identified and characterized as Oenothein B. Oenothein B has been shown to have anticancer activities and to inhibit the 5 α -reductase, enzyme responsible for the biosynthesis of dihydrotestosterone [Lesuisse, 1996]. Significant necrotic effects were shown at the high concentration, but no apoptotic response. Extracts of *E. angustifolium* from different countries (Canada and Europe) show different antiproliferative effect in dose response graph. Flow cytometry analysis indicated that extracts inhibit the cell progression cycle from the G₀/G₁ phase. [Vitalone et al, 2003]

