

Short report

Components and antibacterial activity of the roots of *Salvia jaminiana*

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Received 28 November 2004; accepted 8 March 2005

Available online 12 May 2005

Abstract

The acetone extract of the roots of *Salvia jaminiana*, containing the sterols campestanol, stigmasterol and sitosterol, and five known diterpenoids, ferruginol, cryptanol, 6,7-dehydroroyleanon, 6-hydroxysalvinolone and microstegiol, remarkably inhibited the growth of *Bacillus subtilis*, *Staphylococcus aureus* ATCC 25923 and *Streptococcus α-hemolitic*.

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Keywords: *Salvia jaminiana*; Sterols; Diterpenoids; Antibacterial

1. Plant

Salvia jaminiana (Lamiaceae) roots were collected from Batna (Eastern Algeria) in May 2002 and authenticated by Mr. Kamel Kabouche (Constantine, Algeria). A voucher specimen was deposited in the Herbarium of the Laboratory of Therapeutic Substances (LOST) at Mentouri University (LOSTZKAKSj05/02).

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2. Uses in traditional medicine

Antispasmodic, diuretic, antibacterial and emmenagogue.

3. Previously isolated compounds

No reports.

4. New isolated components

Campestanol, stigmasterol and sitosterol and ferruginol [1] (yield: 0.0047%), 6,7-dehydroroleanon [2] (yield: 0.0028%), cryptanol [3] (yield: 0.0075%), 6-hydroxysalvinolone [4] (yield: 0.0009%) and microstegiol [5] (yield: 0.0006%).

5. Studied activity

Antibacterial activity using the disk diffusion method [6,7] and minimal inhibition concentration (MIC).

6. Used microorganisms

Listed in Table 1.

7. Results

Reported in Table 1.

Table 1
Antibacterial activity of the *S. jaminiana* roots acetone extract

Microorganism	Inhibition zone (mm)		MIC ($\mu\text{g/ml}$)	
	Ampicillin (10 $\mu\text{g/ml}$)	Extract (128 $\mu\text{g/ml}$)	Extract (128 $\mu\text{g/ml}$)	Ampicillin (10 $\mu\text{g/ml}$)
<i>Bacillus subtilis</i>	14	28	4	10
<i>Escherichia coli</i> ATCC 25922	18	14	128	10
<i>Klebsiella pneumoniae</i>	14	12	>128	32
<i>Proteus mirabilis</i>	16	8	>128	64
<i>Staphylococcus aureus</i>	30	26	16	5
<i>Streptococcus α-hemolitic</i>	18	22	6	8

8. Conclusion

Three sterols, campestanol, stigmasterol and sitosterol, and five diterpenoids ferruginol, 6,7-dehydroroleanon, cryptanol, 6-hydroxysalvinolone and microstegiol were found in the acetone extract of the roots of *S. jaminiana*. This extract inhibited remarkably the growth of *Bacillus subtilis*, *Staphylococcus aureus* ATCC 25923 and *S. α -hemolitic* while a very weak antibacterial activity was observed with *Escherichia coli*, *Klebsiella pneumoniae* and *Proteus mirabilis*. Among the five isolated diterpenoids, ferruginol [8], 6-hydroxysalvinolone [9,10] and microstegiol [9,10] were found to have a weak antibacterial activity (MIC > 250 μ g/ml) against the tested bacteria while 6,7-dehydroroleanon [11] inhibited selectively the growth of *S. aureus* (data not shown). To our knowledge, it is the first time that a *Salvia* species gave a significant inhibition of the growth of *B. subtilis*.

Acknowledgments

The authors thank the National Health Research Agency, Oran Algeria, (ANDRS) for financial support and Dr. R. Touzani (University of Ottawa, Department of Chemistry) for bibliographic complements.

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