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Short report

Antiplasmodial activity and cytotoxicity of *Albertisia delagoensis*

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Abstract

Leaves and rhizome methanol extracts of *Albertisia delagoensis* tested positive against *Plasmodium falciparum*, with a very low cytotoxic activity in leaves against the Graham cell line.

Keywords: *Albertisia delagoensis*; Antiplasmodial activity; Cytotoxicity

1. Plant

Albertisia delagoensis N.E. Br. Forman (Menispermaceae) leaves and roots collected in Tembe Elephant Park [2632 CD (Bela Vista)], was identified by Ben-Erik Van Wyk. A voucher specimen [Van Wyk & De Wet 4074 (ZULU)] is deposited in the Herbarium of the Department of Botany, University of Zululand, South Africa.

2. Uses in traditional medicine

As an antipyretic [1]. Newly recorded uses for leaves infusion are for anti-diarrhoea, anti-vomiting and cleansing of baby's stomach. Rhizome infusion is used for menstrual pain, improved sexual performance by men, chest problems, body pain (as when suffering from influenza), back pain, antenatal, anthelmintic, appetite stimulant and the ashes to heal sores [2].

3. New isolated constituents

O-methylcocsoline (167 mg) [3], cocsoline (684 mg) [4] and cocsuline (366 mg) [5] were all extracted from 723 g dried rhizome. Cocsoline, cycleanine [6], *O*-methylcocsoline and dicentrine [7] were identified by comparison of TLC and HPLC of the leaf alkaloid extracts with reference compounds (Fig. 1).

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4. Tested material

Methanol extracts from dried leaves and rhizome.

5. Studied activity

Antiplasmodial and cytotoxic activities evaluated according to established protocols [8–10].

6. Results

Tested on chloroquine-resistant Gambian FCR-3 strain of *Plasmodium. falciparum*, methanol extracts exhibited an antiparasitic activity of IC_{50} 4.1 μg/ml (leaves) and IC_{50} 1.6 μg/ml (rhizome). Tested on Graham cells (transformed human kidney epithelium cells) the extracts showed a cytotoxic activity of IC_{50} > 200 μg/ml or a growth inhibition of 2.5% at 200 μg/ml for leaves and a cytotoxic activity of IC_{50} 166 μg/ml or a growth inhibition of 93.9% μg/ml at 200 μg/ml for rhizome.

7. Conclusions

The medicinal uses of *A. delagoensis* can probably be explained by the biological activities of the identified alkaloids in the plant [4,11,12]. The low cytotoxicity of leaf extract coupled to the low IC_{50} value for antiplasmodial activity shows that this species has potential as an antimalarial plant.

Acknowledgements

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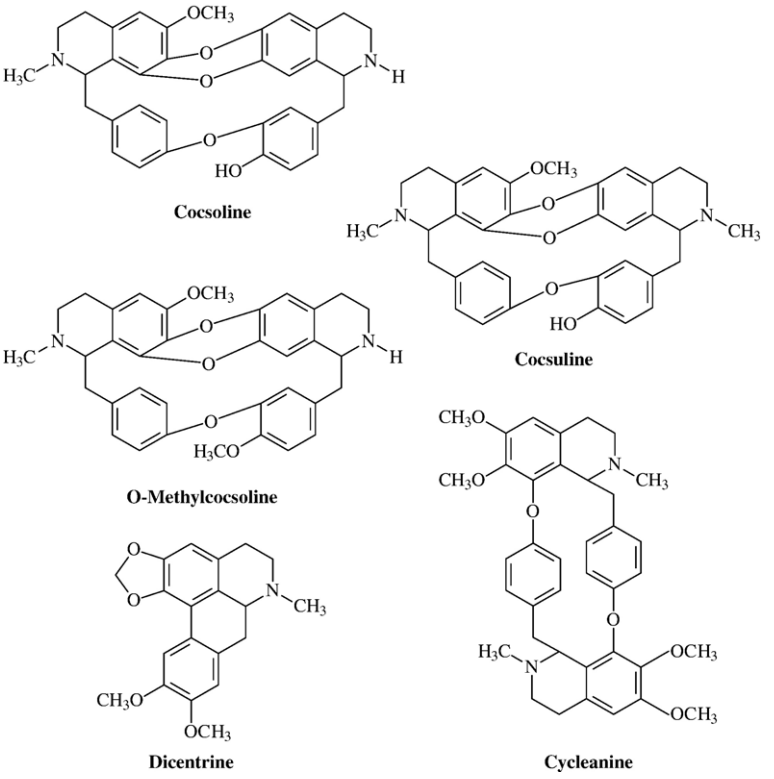

Fig. 1. Structures of the alkaloids identified in *Albertisia delagoensis*.

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