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Short report

Antimicrobial flavonoids from the stem bark of *Erythrina burttii*

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Abstract

The chloroform extract of the stem bark of *Erythrina burttii* showed antifungal and antibacterial activities using the disk diffusion method. Flavonoids were identified as the active principles. Activities were observed against fungi and Gram(+) bacteria, but the Gram(−) bacteria *Escherichia coli* was resistant.

Keywords: *Erythrina burttii*; Stem bark; Flavonoids; Antibacterial; Antifungal

1. Plant

Erythrina burttii Ball. (Leguminosae), stem bark, collected near Emali town, on the Nairobi–Mombasa road, Kenya, in March 2001, identified by Mr. S.G. Mathenge. Voucher specimen is deposited in Botany Department, University of Nairobi.

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2. Uses in traditional medicine

Erythrina spp. and flavonoids isolated from these plants are known for their antimicrobial activities [1–3].

3. Previously isolated classes of constituents

Flavonoids from the stem [4] and the root bark [5].

4. Tested material

Listed in Table 1.

5. Studied activity

Antimicrobial test using disc diffusion method [6].

Table 1
Antimicrobial activities of flavonoids isolated from *E. burttii* stem bark

Sample	μg/disc	1	2	3	4	5	6
Chloroform extract of *E. burttii* (stem bark)	1000	10[a]	12	20	17	20	–
Sigmoidin B 4′-methylether (**1**)	100	20	26	30	14	15	–
	50	14	22	20	12	12	
	10	6	7	8	9	8	
Sigmoidin B 4′-methylether diacetate (**1a**)	100	–	–	–	–	–	–
Abyssinone V (**2**)	100	–	–	–	–	12	–
	50					8	
	10					–	
Abyssinone V 4′-methylether (**3**)	100	–	–	–	–	–	–
Calopocarpin (**4**)	100	26	40	34	20	23	–
	50	20	36	27	18	18	
	10	8	12	11	12	10	
Calopocarpin diacetate (**4a**)	100	–	–	–	–	–	–
Neorautenol (**5**)	100	6	26	12	15	12	–
	50	–	12	8	10	10	
	10	–	8	–	8	–	
Bidwillon A (**6**)	100	9	25	15	18	15	–
	50	–	9	11	10	8	
	10	–	8	8	8	–	
Nystatin	5	12	14	30	32	–	–
Oxacillin	1	–	–	–	–	18	6

Microorganisms: 1=*Candida albicans* (ATCC 90028), 2=*Trychophyton mentagrophyte* (clinical isolate), 3=*Microsporum gypsum* (clinical isolate), 4=*Saccharomyces cerevisiae* (ATCC 9763), 5=*Staphylococcus aureus* (ATCC 25923), 6=*Escherichia coli* (ATCC 25922).
"–" Not active.
[a] Inhibition zone in mm.

6. Used microorganisms

Listed in Table 1.

7. Results

Reported in Table 1.

8. Conclusions

In a bioassay-guided fractionation using *Staphylococcus aureus*, the flavanones sigmoidin B 4′-methylether (**1**) and abyssinone V (**2**), the pterocarpans calopocarpin (**4**) and neorautenol (**5**), and the isoflavanone bidwillon A (**6**) were identified as the active components (Fig. 1). Sigmoidin B 4′-methylether and calopocarpin were the most active

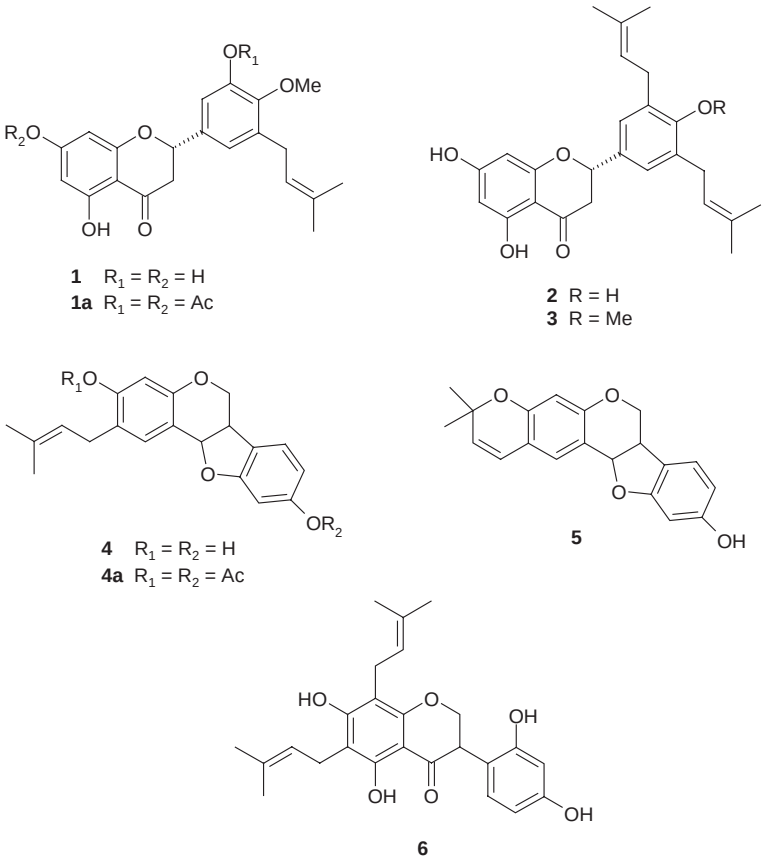

Fig. 1. Flavonoids isolated from *E. burttii* (stem bark).

principles of the stem bark of this plant against the fungi and *S. aureus*. All compounds were inactive against *E. coli*. The acetate derivatives **1a** and **4a** were inactive, and hence the presence of free phenolic group(s) appears to be important for antimicrobial activities of **1** and **4**.

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