REFERENCES

1. Bouillant, M. L., Besset, A., Favre-Bonvin, J. and Chopin, J. (1978) *Phytochemistry* **17**, 527.
2. Besson, E., Besset, A., Bouillant, M. L., Chopin, J., Van Brederode. J. and Van Nigtevecht, G. (1979) *Phytochemistry* **18**, 657.
3. Bouillant, M. L., Favre-Bonvin, J. and Chopin, J. (1975) *Phytochemistry* **14**, 2267.
4. Chopin, J., Besset, A. and Bouillant, M. L. (1977) *C.R. Acad. Sci. Ser. C* **284**, 1007.
5. Besset, A., unpublished results.
6. Bouillant, M. L., unpublished results.

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KAEMPFERIDE 3-GLUCURONIDE FROM THE ROOTS OF *CLEOME VISCOSA*

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Cleome viscosa (Capparaceae), commonly known as 'Hurhur' in Hindi, is reputed for its medicinal properties [1, 2]. No previous chemical analysis has been carried out on the roots of this plant. In the present study we have identified a new glycoside: kaempferide 3-glucuronide in the root tissue.

EXPERIMENTAL

The air-dried powdered roots of *Cleome viscosa* were extracted exhaustively with hot EtOH, which on concn and keeping at 0° for 2 days deposited a white cpd, which is being further studied. The filtrate was diluted with H_2O and the soluble portion extracted with increasingly polar organic solvents. The MeOH soluble fraction gave a reddish coloured cpd, which on further extraction with absolute EtOH, gave the reported glycoside, mp 104–5°, crystallized from MeOH–petrol and shown to be homogeneous by PC (R_f 0.88 in *n*-BAW, 4:1:5 v/v) and TLC (R_f 0.32 in $CHCl_3$–MeOH, 7:3 v/v); yield, 300 mg (Found: C, 55.39; 4.20; —OCH_3, 6.49. Calc. for $C_{22}H_{20}O_{12}$: C, 55.46; H, 4.20; —OCH_3, 5.51%). ν_{max}^{KBr} 3375, 2975, 2870, 1700, 1680, 1410, 1370, 1225, 1170, 1020, 920 and 825 cm^{-1}. λ_{max} MeOH 265, 365; +NaOMe 285, 415; +$AlCl_3$ 276, 365; +$AlCl_3$–HCl 270, 360; +NaOAc 275, 390 and +NaOAc–H_3BO_3 265, 320, 365 nm.

150 mg of the compound on hydrolysis with H_2SO_4(20 ml; 7%) gave glucuronic acid (Co-PC) and kaempferide (kaempferol 4'-methyl ether), identified by mp, MS, demethylation, acetylation, IR, UV spectral data and NMR. As positive NaOAc and $AlCl_3$ shifts indicate that both the 5- and 7-hydroxyls are free, the glucuronic acid residue must be attached at the 3-position and emulsin hydrolysis of the glycoside confirmed that the sugar is β-linked.

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REFERENCES

1. Chopra, R. N., Nayar, S. L. and Chopra, I. C. (1956) *Glossary of Indian Medicinal Plants*, p. 70. C.S.I.R., New Delhi.
2. Kirtikar, K. R. and Basu, B. D. (1935) *Indian Medicinal Plants* **1**, 183.