**Natural Product Sciences**
4(1) : 51 ~ 52 (1998)

# A New coumarin from the seeds of Jute (*Corchorus olitorius* L.)

**K. K. Mukherjee, S. K. Mitra, and S. N. Ganguly***

Department of Botany, Bose Institute,
93/1 A. P. C. Road, Calcutta-700 009, India

**Abstract** – From the chloroform extract of the defatted seeds of jute a new coumarin $C_9H_6O_4$, m.p. 178-179℃, was isolated. The structure of the compound was established as 4,7-dihydroxy coumarin on the basis of physical methods viz. $^1H$ NMR, $^{13}C$ NMR and Ms.

**Key words** – Jute, seed, 4,7-dihydroxy coumarin.

## Introduction

In continuation of our investigations on natural product chemistry (Bera *et al.* 1991, Ganguly, 1994, Kawakami *et al.* 1995, Banerjee and Ganguly, 1997), we like to report in this communication the isolation and structure elecidation of a coumarin derivative from the seeds of Jute, *Corchorus olitorius*.

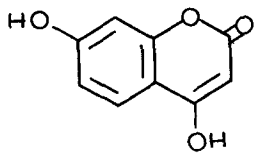
## Results and discussion

The finely powdered seeds of Jute, *C. olitorius* was defatted with petroleum ether (60-80°). The defatted plant material was further extracted with chloroform. The chloroform extract was concentrated and the concentrated mass was chromatographed over silica gel. The column was successively eluted with petroleum ether, benzene and chloroform. The early petroleum ether elute afforded much oil whereas later petroleum elute and benzene elute gave a white fatty compound. In chloroform elute an yellow solid was obtained which on repeated chromatography afforded a white crystalline compound, $C_9H_6O_4$, crystallised from chloroform-benzene in needle m.p. 178-79°. The solid gave yellow colouration with alcoholic KOH indicating that it is a coumarin derivative. The UV spectrum of the compound in ethanol showed absorption at λ max 226,256, 294 nm. The IR spectrum showed bands at 3490. (OH-group), 1718(αβ-unsaturated δ-lactone), 1660, 1452, 1375 and 1345 (aromatic residue). The $^1H$ NMR spectrum in $CDCl_3$ showed the absence of a pair of doublet for H-3 and H-4 clearly indicates the presence of substitution either at 3- or 4- or both in the coumarin nucleus. (Steck and Mazurek, 1972). The appearance of a singlet at δ 5.36 for one proton clearly indicates the presence of H-3. The hydroxy signal appeared at δ 3.62. The H-5 and H-6 appeared as doublet at δ 7.34 and δ 7.44 respectively. The H-8 proton appeared as singlet at δ 6.76. The mass spectrum of the compound showed a molecular ion peak at m/z 178 (M+), with other important peaks at m/z 150,77. The $^{13}C$ NMR of the compound showed clearly the presence of nine carbon atoms with important peaks at δ 156.6(C-2), 113.6(C-3), 107.5(C-8), 111.4 (C-5), 121.3(C-6), 152.3(C-7), 113.82(C-4a), 143-82(8a), (Levy, 1980).

On the basis of the above the structure of

*Author for correspondence.

the coumarin was given as.




## Acknowledgements

The authors are thankful to the Director, Bose Institute, for his encouragement during the course of the work. Thanks are also due to Professor Ajay Bose, George Meade Bond Professor, Stevens Institute of Technology, Hoboken, New Jersey, USA, for NMR and MS.

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(Accepted February 24, 1998)