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**Chemical Constituents of *Gmelina philippinensis*,
Adenocalymna nitida, *Allamanda cathartica*,
Averrhoa carambola and *Maba buxifolia***

K. P. TIWARI, M. MASOOD and P. K. MINOCHA

Department of Chemistry, University of Allahabad, Allahabad

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Gmelina philippinensis (N. O. Verbenaceae), *Adenocalymna nitida* (N. O. Bignoniaceae), *Allamanda cathartica* (N. O. Apocyanaceae) and *Averrhoa carambola* (N. O. Oxalidaceae) are very often cultivated in Indian gardens. Some of them find extensive medicinal uses for the treatment of various ailments^{1,2}. The presence of kaempferol and quercetin from the flowers of *A. cathartica* has already been reported³.

The air dried flowers (1 kg each) of *G. philippinensis*, *A. nitida*, *A. cathartica* and *A. carambola* were extracted exhaustively with ethanol separately. The ethanolic extracts were concentrated and they were extracted with petroleum ether to remove oil and fats. The concentrated extracts left after the extraction with petroleum ether were extracted with acetone. The acetone extracts were concentrated and adsorbed onto the column of magnesol⁴. On eluting with ethyl acetate saturated with water kaempferol, $C_{15}H_{10}O_6$, m.p. 276-8°(d) has been obtained from *G. philippinensis*, *A. nitida* and *A. cathartica*, quercetin, $C_{15}H_{10}O_7$, m.p. 316°(d) and hesperitin $C_{16}H_{10}O_8$, m.p. 220-2°(d) were obtained from *A. nitida* and *A. cathartica* and quercetin-3-O- β -D-glucoside, $C_{21}H_{20}O_{12}$, m.p. 234-6° and rutin, $C_{27}H_{30}O_{16}$, m.p. 188° were obtained from *A. carambola*. The glycosides were characterised by the spectral studies and studies of their hydrolysis products.

Previous studies have shown the presence of 7, 9, 9 trimethyl hexa cosan-8 one, friedelin, friedelin-3-ol, oleanolic acid, quercetin, taxifolin and taxifolin-7-O- α -L galactopyranoside from the stem of *M. buxifolia*⁵.

The air dried, powdered and defatted leaves (3 kg) of *M. buxifolia* were extracted exhaustively with ethanol. The ethanolic extract was concentrated to a thick viscous mass. The thick viscous mass

was taken in water (1 litre) and was shaken vigorously. The water insoluble substances were separated by filtration. The filtrate on concentration gave a thick brown syrupy substance which was found to be flavonoid glycoside. The study of syrupy flavonoid glycoside is in progress.

The water insoluble fraction was extracted exhaustively with hexane to remove chlorophyll and fat. The water insoluble fraction, left after the removal of chlorophyll and fat was extracted with chloroform (4 \times 100 ml). The chloroform insoluble substance was recrystallised from hot ethanol, m.p. 102° which could not be studied due to paucity of the material. The chloroform extract was concentrated and passed through a column of silica gel using mixture of benzene and chloroform (1 : 1) as solvent whereupon friedelin, $C_{30}H_{50}O$, m.p. 265° and friedelin-3-ol $C_{30}H_{52}O$, m.p. 281-2° were obtained.

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The Correlation between Carbonyl Stretching Frequencies, Force Constant and Formal Bond Order in Carbonyl Complexes

K. GOSWAMI and M. M. SINGH*

Department of Chemistry, Dibrugarh University
Dibrugarh 786 004, Assam

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A large number of carbonyl complexes of transition metals have been prepared and studied. Of all the physical methods of their investigations, the use of i.r. method with special reference to carbonyl bands is the most informative. The shifts of carbonyl stretching frequencies and their intensities have been explained on the basis of involvement of metal d_{π} or p_z orbitals in π -bonding with CO and