INTRODUCTION

The flavonoids are considered potential for human health as well as constitute on important part of human diet. They are also considered as active principles in various medicinal plants. *Moringa pterygosperma* Gaerthn (Moringaceae) commonly known as Drumstick. It is commonly used in Indian folk medicine for the treatment of various illness. It is grows to 10-15 meter high and rapidly growing tree that resembles legume has tripinanate, leaves, a gummy bark and fragrant flower with white petals. The flower 1.5 to 2 cm long.

The plant used in antitumor, hypertensive, antioxidant, and anti-cancer. In the present paper, we here report the isolation and characterization of a new flavonoid glycoside from the flower of *Moringa pterygosperma*. The plant is a source of various novel bioactive compounds.

EXPERIMENTAL

Extraction, Isolation and Identification

The air dried and defatted powdered flowers of Moringa pterygosperma were extracted with hexane, benzene, chloroform, ethylacetate and n-butanol. CHCl₃ soluble part after concentrated under reduced pressure was subjected to column chromatography on silica gel and eluted with increasing proportion of ethyl acetate and methanol elution of column with EtOAc-MeOH (6:4 v/v) and (8:2 v/v) afforded a new compound (I) 0.5 gm.

Compound (I): The compound was recrystallised form methanol as yellow crystal mp C₂₇H₃₀O₁₆, mp 272-274°C, Rf-0.15; Ana Found : C, 52.88; H, 4.70, Calcd. For C₂₇H₃₀O₁₆; UV l Max (nm); (MeOH) 257, 269 (sh), 300 (sh) 361 (sh) + NaOMe 273, 327, 408; +AlCl₃ 274, 327, 382; +NaOAc 274, 327, 382; +NaOAc+H₃BO₃, 263, 297 (sh), 377; IR(KBr):1651,3355,1208,1256,1033,1103,3001,2907 cm⁻¹; MS (m/z); 610(M⁺); 1HNMR (DMSOd₆); 2.78 (2H, m, H-3) 3.33-4.50 (6H, m Sug-H). 0.90 (br, J=6Hz, rhamnose methyl), 5.69 (1H, d, 7= 4 and 12 Hz, H-2), 6.42 (1H d, J=2.5 Hz, H-6), 7.39 (1H,d,J 9.5 Hz, H-2',6');C¹³ NMR; 80.07 (C-2), 46.09 (C-3), 196.01 (C-4), 163.98 (C-5), 97.33 (C-6), 163. 74 (C-7), 106.28 (C-8), 166.03 (C-9), 103.3 (C-10), 119.44 (C-1'), 156.45 (C-2'), 98.58 (C-3'), 159.58 (C-4'), 104.5 (C-5'), 126.43 (C-6'), glucose 101.3 (C-1), 69.00 (C-2), 78.80 (C-3), 64.00 (C-4), 77.00 (C-5), 63.00 (C-6), rhamnose 100.50(C-1),70.50(C-2),70.90(C-3),72.20(C-4), 68.00 (C-5), 17.50 (C-6).

Acid Hydrolysis of (I)

Compound (I) was hydrolysed with 7% H₂SO₄ (40 ml) by refluxing 5 hrs. The resulting solid

Isolation of flavonoid glycoside from *Moringa pterygosperma*

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(Received: March 03, 2010; Accepted: April 28, 2010)

ABSTRACT

Chromatographic resolution of the flower of the *Moringa pterygosperma* furnished quercetin 3-O-α-L rhamnosyl (1→6) β-D-glucoside (I) which were characterized by spectral analysis.

Key words: *Moringa pterygosperma*, flavonoid glycosides.
was washed with water to afford quercetin and the aqueous portion was found to contain D-glucose and L-rhamnose (co-pc); Aglycone was yellow needles (0.09 gm), mp. 312-314°C; mf C_{15}H_{10}O_{7}; Anal. found C, 59.65; H, 3.31; Calcd for C_{15}H_{10}O_{7}; C, 59.61; H, 3.34%; MS : (m/z); 302 (M+); 301, 274, 153, 152, 134, 124; C^{13} NMR : 80.07 (C-2), 46.09 (C-3), 196.01 (C-4), 163.98 (C-5), 97.33 (C-6), 163.74 (C-7), 106.28 (C-8), 166.03 (C-9), 103.3 (C-10), 119.44 (C-1'), 156.95 (C-2') 98.58 (C-3'), 159.58 (C-4'), 104.5 (C-5'), 126.43 (C-6'), glucose : 101.3 (C-1), 69.00 (C-2) 78.80 (C-3) 64.00 (C-4), 77.00 (C-5) 63.00 (C-6); Rhamnose : 100.50 (C-1), 70.50 (C-2), 70.90 (C-3), 72.70 (C-4), 68.00 (C-5), 17.50 (C-6).

RESULTS AND DISCUSSION

Compound (I) mp 272-274°C, was analyzed for mf C_{27}H_{30}O_{16}, element analysis and M+ 610. The conclusive colour reaction and UV spectrum with different chemical shifts indicated it to be a flavone glycoside. The glycoside on acid hydrolysis gave yellow aglycone and two sugars identified as glucose and rhamnose by Rf value 0.18 and 0.34 respectively by pc and column chromatography with authentic sample.

The aglycone mf C_{15}H_{10}O_{7} (M+ at 302), mp 312-314°C responded to all positive test and colour reaction of flavonoid. It was confirmed by red colour with Mg and HCl (Shinoda test) the aglycone was characterized as 3,5,7,3',4' penta hydroxyl flavone on the basis UV, IR, 'H NMR , ^{13}C NMR and Co-TLC.

The UV spectrum of (I) recoded in MeOH showed two absorption maximum at 355 and 357 nm. This range of absorption in typical for 3-O substitution presence of free hydroxyl group at position -7 of ring (A) was indicated. Addition of NaOAc/H_{3}BO_{3} showed the presence of 3'4' orthodihydroxyl, A bathochromic shift of 76 nm with 5% MeOH Solution of AlCl_{3} and a decrease of 29 nm after the addition of HCl acid indicated the presence of free hydroxyl group at position 5 of a ring A and 3'4' orthodihydroxylation ring (B).

UV spectrum recorded in MeOH and on addition of diagnostic shift reagent suggested compound (I) to be a 3 substituted flavonoid glycoside. The glycoside was methylated hydrolysed and the resulting practically methylated sugar, were identified and 2,3,4 tri O-methyl L- rhamnose and 2,4,5 tri O-methyl D-glucose by the reported method using 2,3,4,6 tetra –O-methoxyl glucose as standard and column chromatography with authentic sample. This indicated that the inter sugar linkage is rhamnosyl (1→6) glucose in the one spectrum of the glycoside acetate as broad signal at 50-90 observed which is typical of rhamnose

\[ \text{compound (I)} \]

Scheme 1.
methyl group. The acid hydrolysis with emulsion indicated the L-rhamnose is linked to D-glucose through α linkage and D-glucose to flavone thought β linkage. Thus the structure of the compound (I) was established as quercetin 3-O-α-L rhamnosyl (1→6) β D-glucoside.

ACKNOWLEDGEMENTS

The authors are thankful to CDRI, Lucknow for providing spectral and analytical data and also Head, of Pharmacy, GGU, Bilaspur for helping in the study of biological activities. We are also thankful to Principal, Govt. ERR PG Science College Bilaspur for research facilities.

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