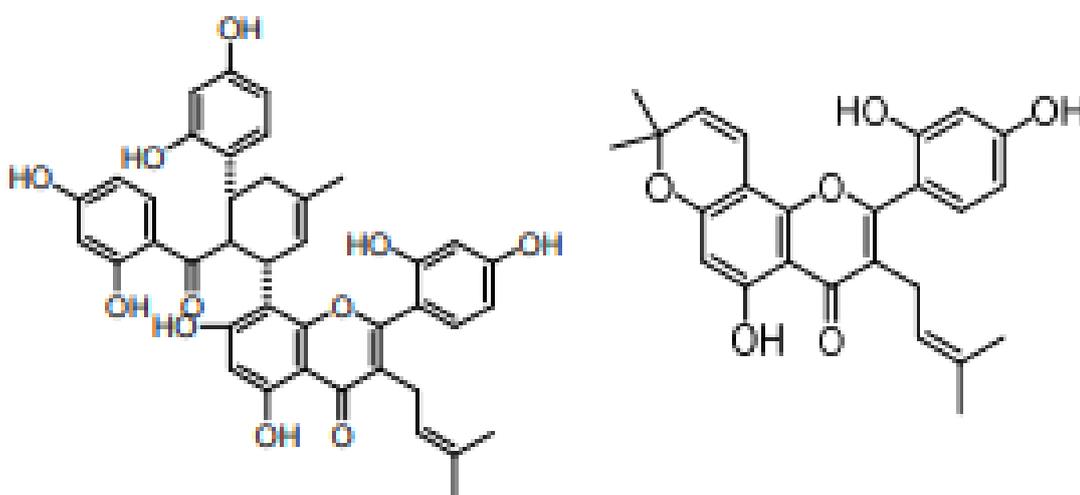


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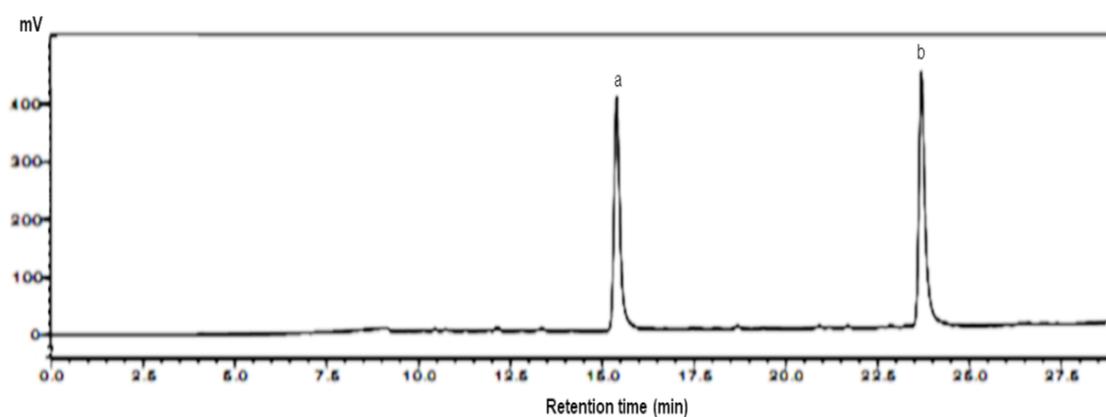
# Supplementary Materials: Aqueous Extracts of *Morus alba* Root Bark and *Cornus officinalis* Fruit Protect against Osteoarthritis Symptoms in Testosterone-Deficient and Osteoarthritis-Induced Rats

Sunmin Park, Bo Reum Moon, Ji Eun Kim, Hyun Joo Kim and Ting Zhang

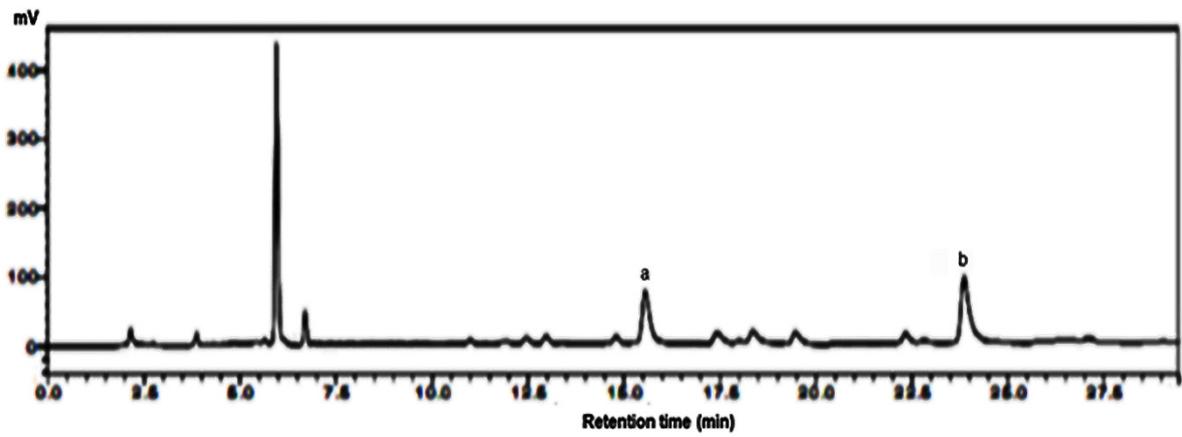
## A Kuwanon Morusin



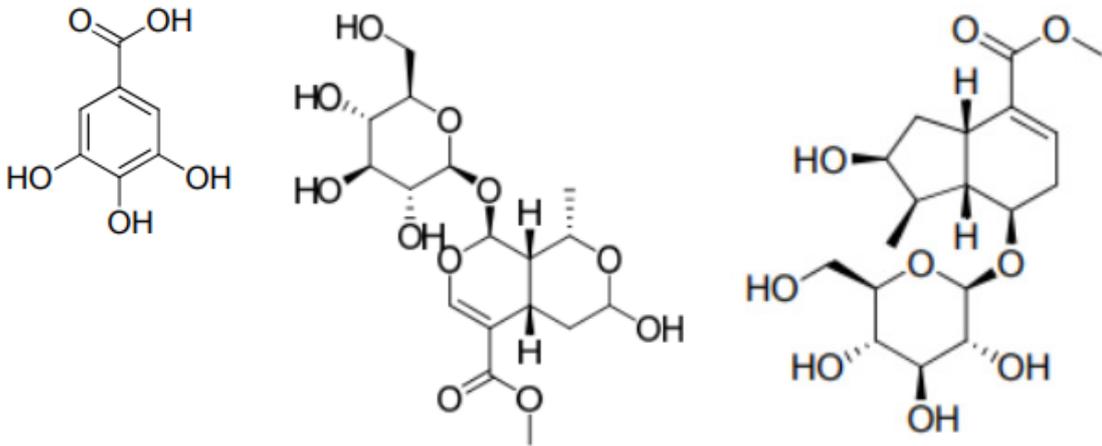
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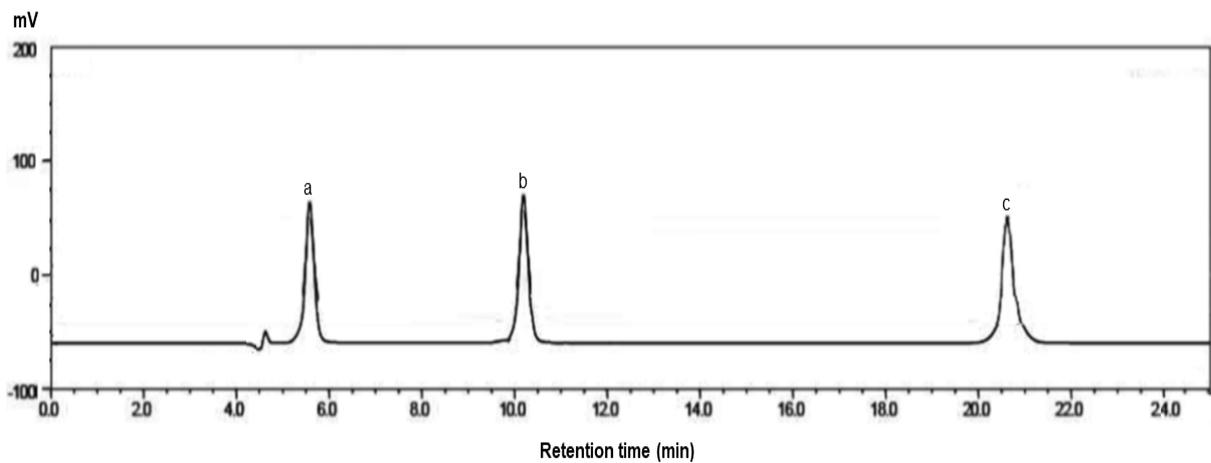
C



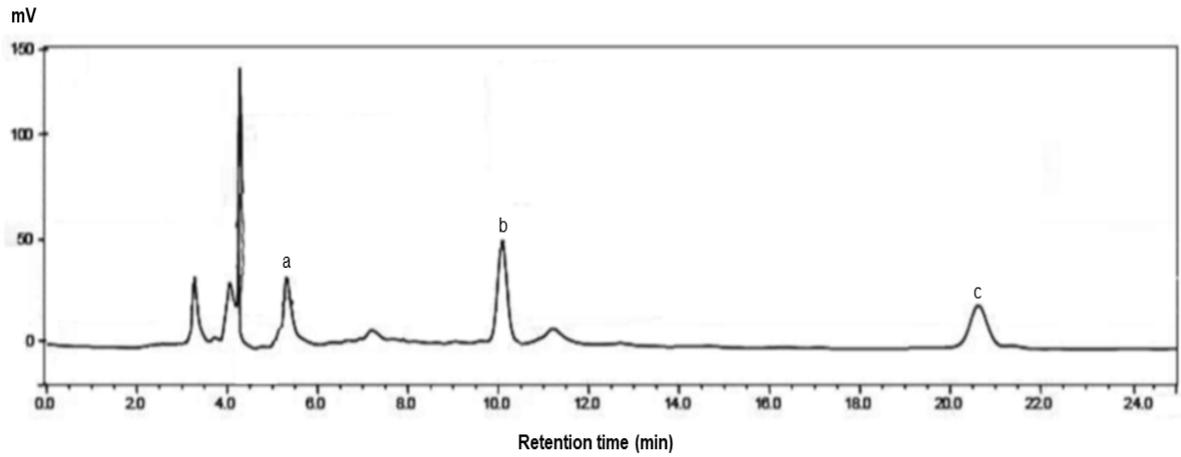
D Gallic acid Morroniside Logenin



E

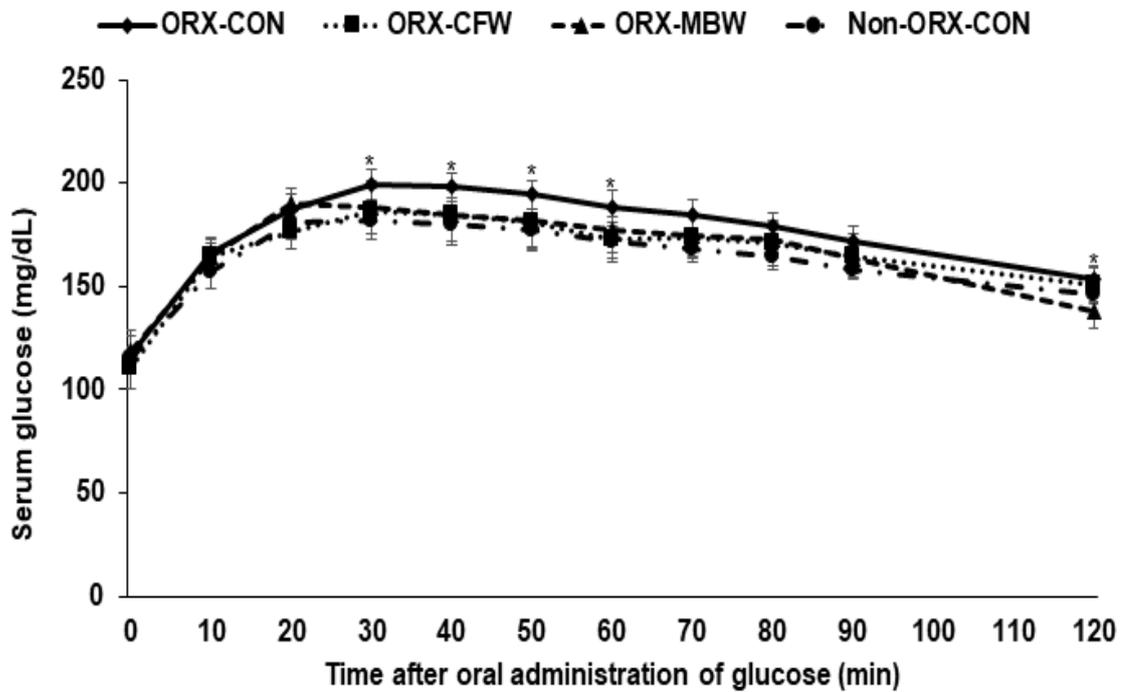


F

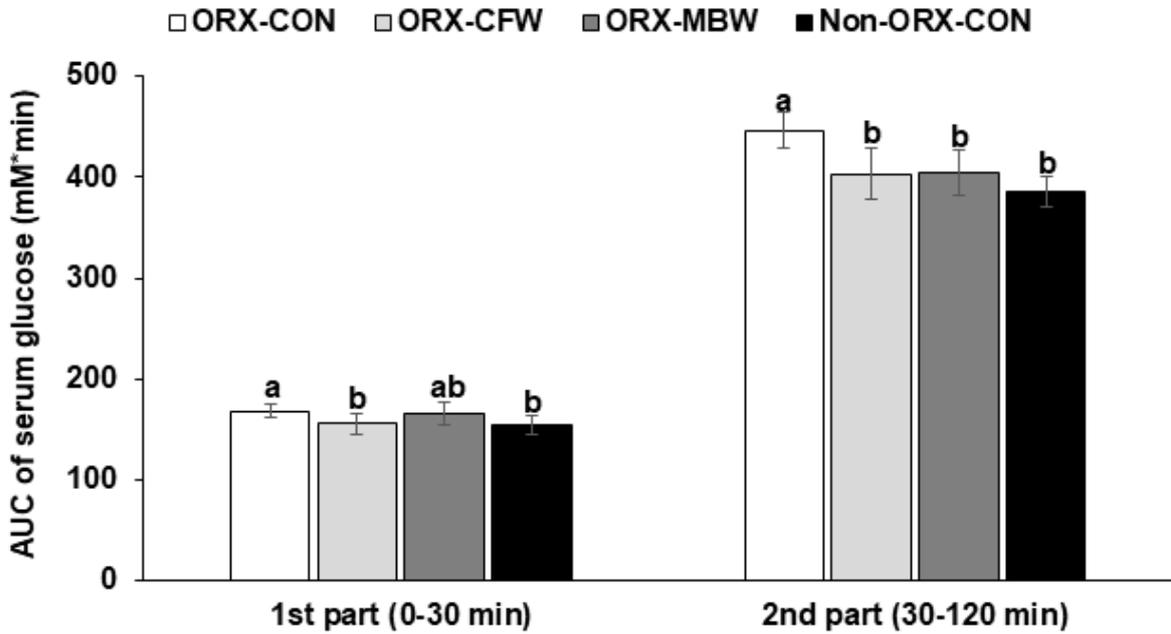


**Figure S1.** HPLC chromatogram of water extracts of *Morus alba* L. root bark and *Cornus officinalis* Siebold & Zucc fruits. (A) Chemical structure of kuwanon and morusin; (B) HPLC chromatogram of kuwanon and morusin standards; (C) HPLC chromatogram of water extracts of *Morus alba* L. root bark; (D) Chemical structure of gallic acid, morroniside, and loganin; (E) HPLC chromatogram of gallic acid, morroniside, and loganin; (F) HPLC chromatogram of *Cornus officinalis* Siebold & Zucc fruit.

A.

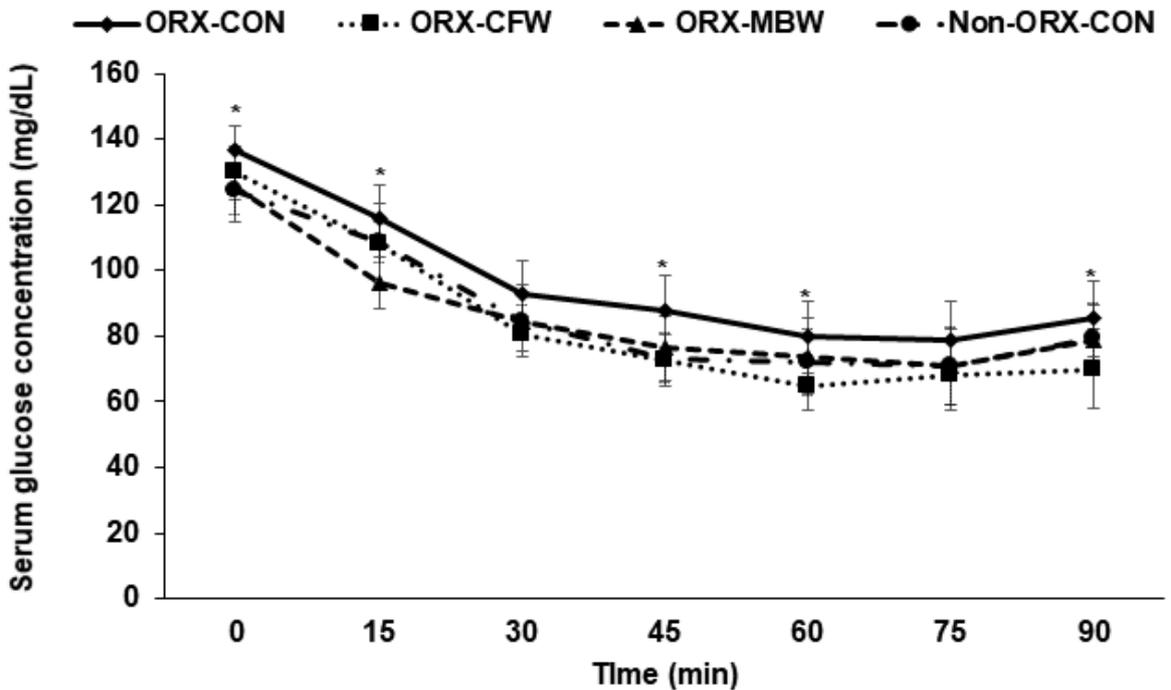


B.

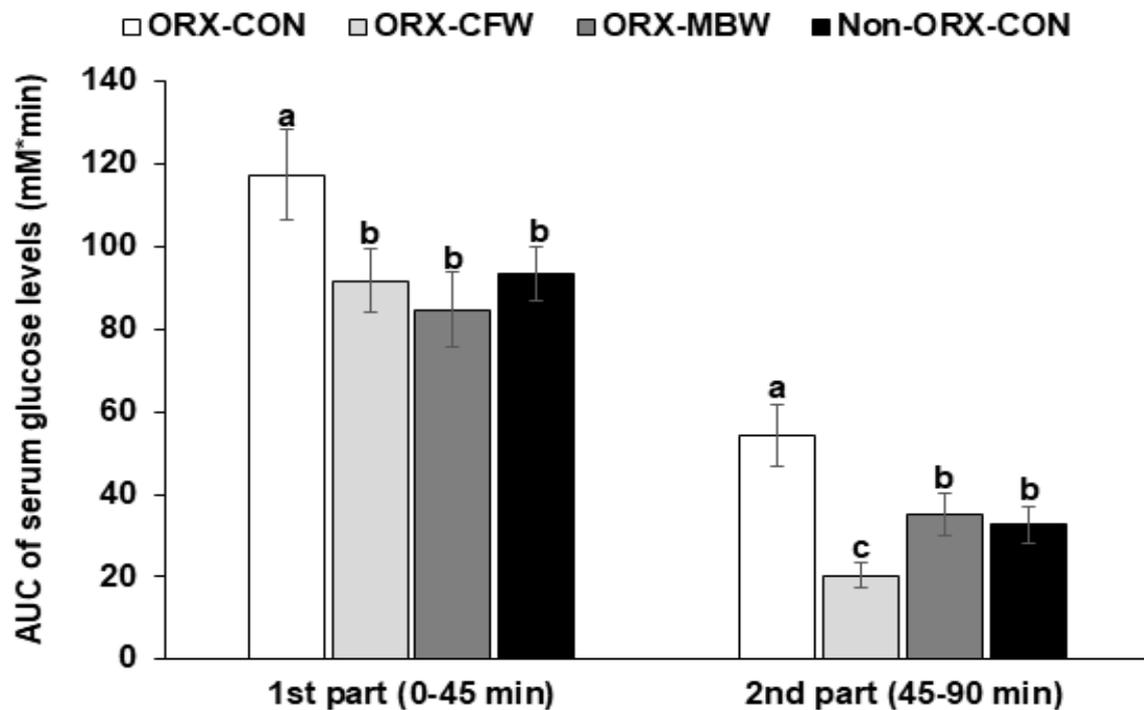


**Figure S2.** Serum glucose levels and area under the curve (AUC) during oral glucose tolerance test at 10th week. (A) Changes of serum glucose levels in 16-h fasted rats after oral challenge of 2 g glucose/kg body weight; (B) Area under the curve (AUC) of serum glucose calculated in the first (0-40 min) and second phases (40-120 min). Each bar or dot and error bar represented the mean  $\pm$  SD,  $n = 10$ . Means without a common alphabet differ at  $P < 0.05$ . ORX-OA-CON, ORX male rats with 43% fat diet with 0.5% dextrin; ORX-OA-CFW, ORX male rats with 43% fat diet with 0.5% CFW; ORX-OA-MBW: ORX male rats with 43% fat diet with 0.5% MBW; Non-ORX-OA-CON, Sham male rats with 43% fat diet with 0.5% dextrin.

A



B



**Figure S3.** Changes of serum glucose levels during insulin tolerance test at 10th week; (A) Changes of serum glucose levels after 1 U insulin/kg body weight into subcutaneous injection after 6h food deprivation; (B) BArea under the curve (AUC) of serum glucose levels calculated in the first (0-30 min) and second phases (30-90 min). Each bar or dot and error bar represented the mean  $\pm$  SD,  $n = 10$ . Means without a common alphabet differ at  $P < 0.05$ . ORX-OA-CON, ORX male rats with 43% fat diet with 0.5% dextrin; ORX-OA-CFW, ORX male rats with 43% fat diet with 0.5% CFW; ORX-OA-MBW: ORX male rats with 43% fat diet with 0.5% MBW; Non-ORX-OA-CON, Sham male rats with 43% fat diet with 0.5% dextrin.