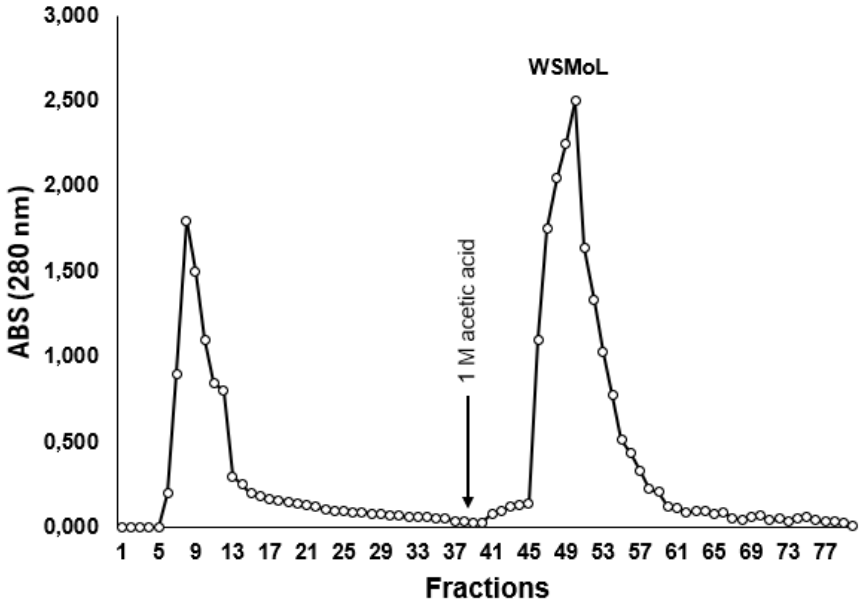
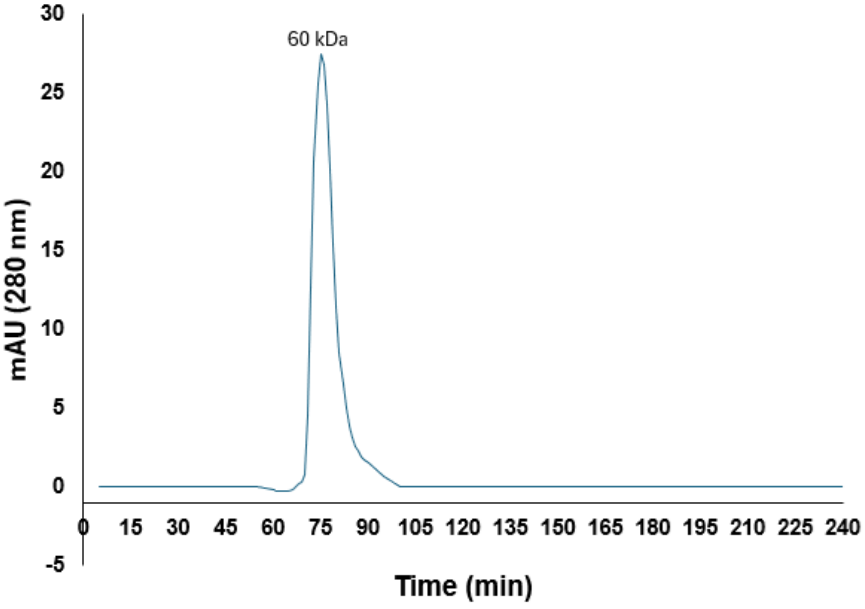


(a)



(b)

Figure S1. Purification and gel filtration profiles of WSMoL. (a) Representative chromatographic profile of WSMoL purification on chitin column. The adsorbed protein (WSMoL) was eluted with 1.0 M acetic acid. **(b)** Gel filtration profile of purified WSMoL on a HiPrep 16/60 Sephacryl S-100 HR column coupled to an ÄKTAprime plus system, showing a protein peak corresponding to approximately 60 kDa.

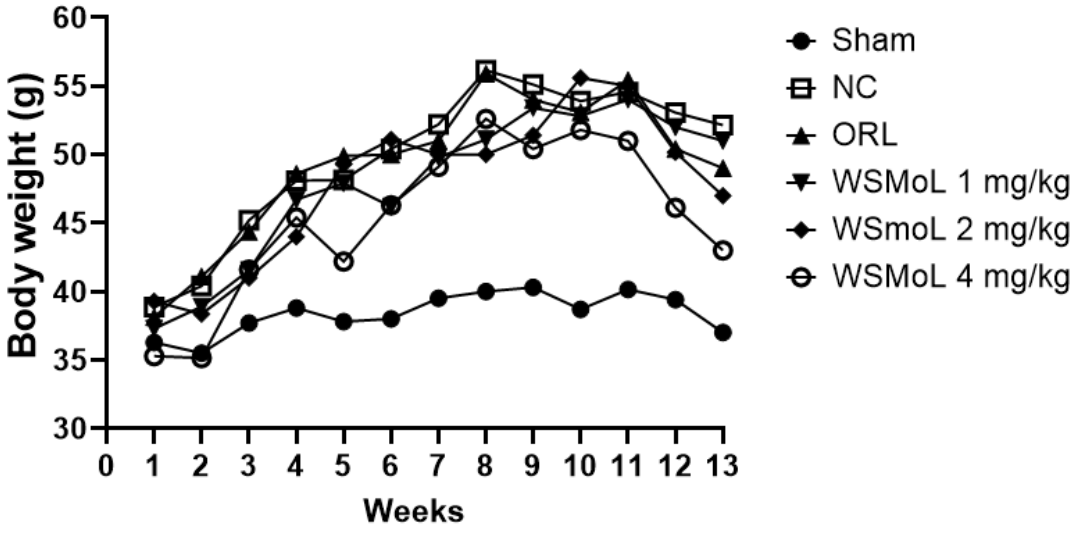


Figure S2. Weekly body weight trajectory of mice throughout the experimental period. The groups correspond to healthy (Sham) mice and mice subjected to the induction protocol of a metabolic syndrome-like (MetS-like) condition and subsequently treated with intraperitoneal injections of PBS (negative control, NC), orlistat (ORL, 40 mg/kg), or the water-soluble lectin from *Moringa oleifera* seeds (WSMoL, 1, 2, or 4 mg/kg).

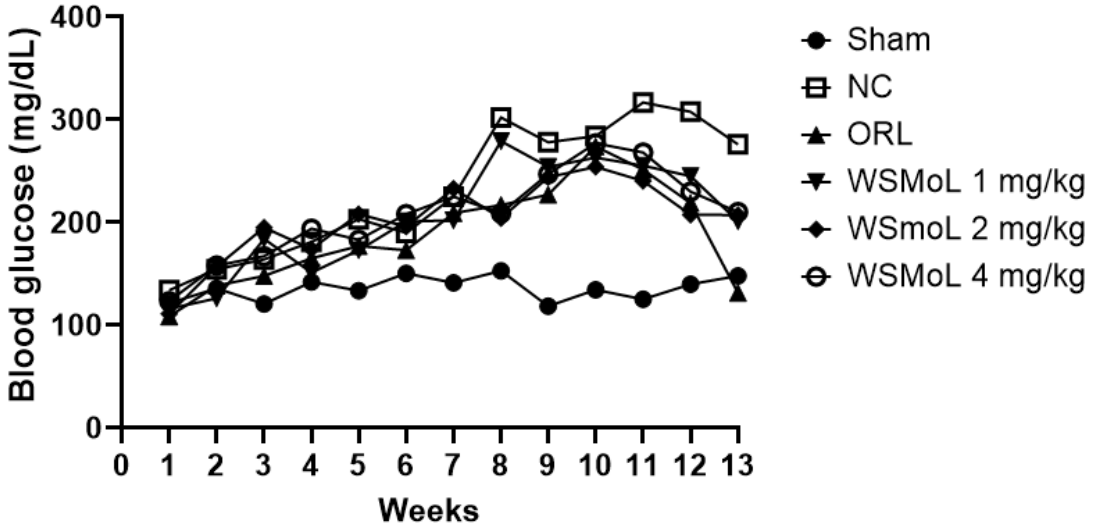


Figure S3. Weekly blood glucose trajectory of mice throughout the experimental period. The groups correspond to healthy (Sham) mice and mice subjected to the induction protocol of a metabolic syndrome-like (MetS-like) condition and subsequently treated with intraperitoneal injections of PBS (negative control, NC), orlistat (ORL, 40 mg/kg), or the water-soluble lectin from *Moringa oleifera* seeds (WSMoL, 1, 2, or 4 mg/kg).