## **Description of Additional Supplementary Files**

**File name:** Supplementary Data 1. **Description:** The altered KOs by HFD or extracts/compounds administration.

File name: Supplementary Data 2.

**Description:** The altered functional metabolic pathways by HFD or extracts/compounds administration.

File name: Supplementary Data 3.

**Description:** CSE, TA, RG and AO ameliorated liver weight indices and fat accumulation, liver injury and inflammation, intestinal mucosal barrier injury and altered microbiota diversity in HFD-fed mice (Raw data).

File name: Supplementary Data 4.

**Description:** CS effects on fat accumulation, liver injury and inflammation, and intestinal mucosal barrier injury are transferred via FMT (Raw data).

**File name:** Supplementary Data 5. **Description:** Extracts or compounds administration ameliorate antibiotic-induced dysbiosis in HFD-fed mice (Raw data).

**File name:** Supplementary Data 6. **Description:** Genera changes by HFD and extracts or compounds administration (Raw data).

**File name:** Supplementary Data 7. **Description:** KEGG pathway analysis (Raw data).