**Highlights**

1. The *Achillea arabica* flower extract regulated the levels of glucose, biochemical and antioxidant parameters.
2. According to LC–MS/MS results of *A. arabica* flower extract, quinic acid, cyranoside, chlorogenic acid and cosmosin were determined as major compounds.
3. Two new compounds were determined in this plant according to NMR analyzes and these compounds were named edremitine and achillosine, respectively.
4. The *Achillea arabica* flower extract might have pharmaceutical-nutritional potential.