**Table S1.** Hawthorn Vinegar Antioxidant Content.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Samples** | **Total Phenolic Compound (TPC) (mg GAE/100ml)** | **Total Flavonoid compound (TFC) (mg CE/100 mL)** | **Ascorbic acid (mg/100 mL)** | **Antioxidant**  **DPPH**  **(% inhibition)** | **Antioxidant CUPRAC**  **(% inhibition)** |
| **Ultrasound Applied (HVU)** | 116.99 | 15.89 | 3.97 | 62.35 | 67.39 |
| **Normal (HVN)** | 110.58 | 14.22 | 4.22 | 57.39 | 63.55 |
| **Thermal Pasteurization** (**HVP)** | 104.22 | 13.18 | 3.45 | 54.86 | 60.22 |

DPPH: 2,2-Diphenyl-1-picrylhydrazyl, CUPRAC: Cupric Reducing Antioxidant Capacity.

**Table S2.** Effects of hawthorn vinegar administration on antioxidant parameters in rats (n:6).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Antioxidant**  **Parameters** | **Control** | **HVN0.5** | **HVN1** | **HVP0.5** | **HVP1** | **HVU0.5** | **HVU1** |
| **Plasma MDA**  (nmol/ml) | 1.41±0.07 | 1.48±0.08 | 1.65±0.08 | 1.60±0.07 | 1.62±0.02 | 1.67±0.03 | 1.57±0.05 |
| **Plasma CAT**  (ng/ml) | 39.51±3.18 | 37.21±1.96 | 37.89±1.44 | 42.42±1.66 | 40.71±0.94 | 40.94±2.06 | 37.51±2.90 |
| **Plasma SOD**  (ng/ml) | 12.36±0.80 | 14.62±0.64 | 11.16±0.23a | 13.64±1.06 | 14.08±0.40 | 13.18±0.91 | 13.30±0.62 |
| **Liver MDA**  (nmol/ml) | 1.95±0.04 | 2.21±0.11 | 2.12±0.10 | 2.11±0.22 | 2.20±0.16 | 2.11±0.07 | 2.19±0.08 |
| **Liver CAT**  (ng/ml) | 61.01±4.73 | 62.72±3.78 | 55.53±4.22 | 49.42±3.57 | 61.77±3.91 | 54.48±3.35 | 66.10±1.94 |
| **Liver SOD**  (ng/ml) | 16.34±0.38 | 16.38±0.39 | 15.72±0.69 | 17.82±0.80 | 17.80±0.78 | 17.24±0.62 | 18.24±0.35 |

Means within a row with different superscripts (a,b,c) differ significantly at p≤0.05. All data are presented as the mean ± SD.

**Table S3.** The effects of various hawthorn vinegar administration on biochemical parameters .

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Biochemical***  ***Parameters*** | **Control** | **HVN0.5** | **HVN1** | **HVP0.5** | **HVP1** | **HVU0.5** | **HVU1** |
| Total Cholesterol (mg/dl) | 86,34±9,51 | 72,75±6,69 | 60,69±6,47 | 59,05±3,17 | 63,36±6,64 | 64,49±4,23 | 67,83±3,99 |
| HDL (mg/dl) | 18,36±3,45 | 35,24±5,08 | 28,54±5,58 | 28,54±4,87 | 32,26±4,44 | 15,38±3,46g | 34,00±1,22 |
| LDL (mg/dl) | 48,56±11,75 | 18,20±3,80a | 20,17±4,83b | 10,91±3,11c | 10,06±2,98d | 28,99±3,98 | 13,69±3,10e |
| Triglyceride (mg/dl) | 97,12±3,65 | 96,56±4,28 | 89,30±3,06 | 98,02±5,95 | 105,17±7,07 | 100,59±5,86 | 100,70±6,23 |
| ALT (IU/L) | 29,98±2,37 | 32,65±2,43 | 32,30±2,45 | 31,43±5,86 | 31,43±2,26 | 32,65±2,35 | 23,75±3,13 |
| AST (IU/L) | 68,79±6,01 | 59,51±8,89 | 53,60±8,83 | 76,65±1,90 | 54,65±6,46 | 53,77±4,56 | 84,86±16,95 |

\* Farklı üst simgelere sahip bir satır içindeki değer, p<0,05'te önemli ölçüde farklılık gösterir. a: grup 1-2 arasında; b: grup 1-3 arasında; c: grup 1-4 arasında; d: grup 1-5 arasında; e grup 1-7 arasında; f: grup 2-4 arasında; g: grup 2-6 arasında. Means within a row with different superscripts (a,b,c,d,e,f,g) differ significantly at p<0.05. All data are presented as the mean ± SD. Control between HVN0.5:a,Control between HVN1:b, Control between HVP0.5:c, Control between HVP1:d, Control between HVU1:e,HVN0.5 between HVP0.5:f, HVN0.5 between HVU0.5:g. **HVN0.5**: Hawthorn Vinegar Normal Group 0.5 ml/kg, **HVN1:** Hawthorn Vinegar Normal Group 1 ml/kg, **HVP0.5**: Hawthorn Vinegar Pasteurized Group 0.5 ml/kg, **HVP1:** Hawthorn Vinegar Pasteurized Group 1 ml/kg, **HVU0.5:** Hawthorn Vinegar Ultrasound Group 0.5 ml/kg, **HVU1:** Hawthorn Vinegar Ultrasound Group 1 ml/kg,.