BILBERON®

Vaccinium myrtillus L.

tokiwa
PHYTOCHEMICAL
Human clinical study 1 (Ref. 1)
Ingestion of BILBERON® at 160 mg/day

**Improvement of the neck and shoulders stiffness**

Evaluation of subjective symptoms using a questionnaire
→ After the 6-week ingestion period, the “Neck and shoulder stiffness sensation” item showed a significant decrease in the BILBERON® group, compared to the placebo group in both before and after VDT load.

**Improvement of accommodative function**

Evaluations of focusing functions using Trilux
→ The miotic frequency (MF) values were significantly increased in the right eye, left eye, and dominant eye, as well as in average of eyes after the 6-week ingestion period. Furthermore, a significant difference between the BILBERON® and placebo groups was confirmed in the dominant eye after 6 weeks of ingestion.

**Improvement of the eye fatigue**

Evaluations of subjective symptoms using a questionnaire
→ After the 6-week ingestion period, the “Eye fatigue sensation” item showed a significant decrease in the BILBERON® group, compared to the placebo group in both before and after VDT load.

Human clinical study 2 (Ref. 2)
Ingestion of BILBERON® at 120 mg/day

**Improvement of accommodative function**

Evaluations of focusing functions using Trilux
→ Comparison of the near point pupil diameter (NPD) variation following the VDT load, revealed a significant reduction in the left eye and the average of eyes in the BILBERON® group, compared to those of the placebo group.

**Improvement of eye fatigue**

Evaluations of subjective symptoms using a questionnaire
→ After 5-week ingestion period, in the “Eye fatigue sensation” item, the significant improvement was indicated in BILBERON® group before and after VDT load. Furthermore, the significant improvement was also showed compared with the placebo group.

**Improvement of eye dryness**

Evaluations of tear film length using a Schirmer’s test
→ In BILBERON® group, an increased tear film length was observed in the left eye and an average eyes after the 6-week ingestion period. A significant increase of tear film length was observed in the right eye of BILBERON® group compared with the placebo group.
Commitment of Bilberry fruits

- 100% high quality bilberry from North Europe
- No pesticides

Manufacturing process of frozen Bilberry fruits

Growing in the forest  Picking by hand  Selecting high quality fruits  Frozen fruits

Safety data of BILBERON®

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (Mice)</td>
<td>LD$_{50}$ ≥ 2000 mg/kg</td>
</tr>
<tr>
<td>Ames test</td>
<td>Negative</td>
</tr>
<tr>
<td>Subchronic toxicity (Rat)</td>
<td>28-day repeat dose oral toxicity test NOAEL 2000 mg/kg/day (Equivalent to 1200 mg/day human)</td>
</tr>
<tr>
<td>Human clinical trial</td>
<td>No adverse events were observed for 6-week ingestion. (120 mg/day &amp; 160 mg/day)</td>
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</tbody>
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Patent intellectual property

- US patent : US 15/643 856
- JIHFS health food raw materials GMP certified
- HALAL certified  · KOSHER certified

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