

GSR reference data #1

## AG Herb MIX

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### Abstract

AG Herb MIX is a hot water extract combining 4 types of herbs, Roman chamomile (*Chamaemelum nobile*), Dokudami (*Houttuynia cordata*), Hawthorn berries (*Crataegus laevigata*), and Grape leaves (*Vitis vinifera*), each of which has an inhibitory action on the production of advanced glycation end products (AGEs), and is used as a health food ingredient.

As peer-reviewed articles, 1 non-clinical study and 5 clinical studies have been reported. According to the reports, AG Herb MIX was found to reduce AGEs ( $N^{\epsilon}$ -(carboxymethyl) lysine [CML] in blood, CML in stratum corneum and the amount of AGEs in the skin) and their intermediate (3-deoxyglucosone in blood). In addition, improvement in melanin index, color difference  $b^*$  (yellowness index), brown spots, and blood oxygen saturation index (an index for complexion) in skin, as well as improvement in skin elasticity and so on were observed. It is suggested that the properties relate with the inhibition of production of AGEs and their intermediate.

**KEY WORDS:** mixed herb extract, advanced glycation end products (AGEs), skin beautification, skin elasticity

### 1. Summary

AG Herb Mix is a food ingredient in powder form with inhibitory action on the production of AGEs, which is extracted with hot water from the mixture of 4 types of dried herbs, namely, Roman chamomile flowerheads (*Chamaemelum nobile*), above-ground portion of Dokudami (*Houttuynia cordata*), Hawthorn berries (*Crataegus laevigata*), and Grape leaves (*Vitis vinifera*), and then dried after adding dextrin to the extract as an excipient.

### 2. Anti-glycation data

The effectiveness of the action data is  $p < 0.05$  based on statistical analysis results. However, a parameter is included with  $0.05 \leq p < 0.1$ , and ( $p < 0.1$ ) is added for distinction.

List of formal names of abbreviations

- AGEs: advanced glycation end products
- 3DG: 3-deoxyglucosone
- CML:  $N^{\epsilon}$ -(carboxymethyl) lysine
- AST: aspartate aminotransferase

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AG Herb MIX

Verification method	AGEs production inhibition study ( <i>in vitro</i> ) and diabetes model animal study ( <i>in vivo</i> )
Evidence data	Yonei Y, Yagi M, Hibino S, <i>et al.</i> Herbal extracts inhibit Maillard reaction, and reduce chronic diabetic complications risk in streptozotocin-induced diabetic rats. <i>Anti-Aging Med.</i> 2008; 5 (10): 93-98.
Data overview	Inhibition of 3DG, pentosidine and CML production

Verification method	Clinical study (open study)
Evidence data	Kubo M, Yagi M, Kawai H, <i>et al.</i> Anti-glycation effects of mixed-herb-extracts in diabetes and pre-diabetes. <i>J. Clin. Biochem. Nutr.</i> 2008; 43(Suppl. 1): 66-69.
Data overview	600 mg of the product per day ingested for 12 weeks Decrease in blood CML and 3DG, increase in skin elasticity (R2, R7)


Verification method	Clinical study (placebo-controlled, double-blind, parallel group comparison study)
Evidence data	Yonei Y, Miyazaki R, Takahashi Y, <i>et al.</i> Anti-glycation effect of mixed herbal extract in individuals with prediabetes mellitus: A double-blind, placebo-controlled, parallel group study. <i>Anti-Aging Med.</i> 2010; 7 (5): 26-35.
Data overview	3,000 mg of the product per day ingested for 8 weeks Decrease in blood CML and 3DG ( $p < 0.1$ ), and improved scores of "muscle pain/stiffness", "headache", "easily angered", "reluctance to talk with others", "lapse of memory" and "inability to make judgments readily" in the anti-aging QOL common questionnaire

Verification method	Clinical study (open study)
Evidence data	Tamura T, Yagi M, Nomoto K, <i>et al.</i> Anti-glycation effect of a novel herbal mixture made of mixed herbal extract and two crude drugs: Short and long term effect. <i>Sci. Eng. Rev. Doshisha Univ.</i> 2012; 52: 244-252. (in Japanese)
Data overview	600 mg of the product per day and herbal medicine (ginger and Japanese pepper) ingested for 12 or 80 weeks Decrease in the amount of AGEs in the skin

Verification method	Clinical study (placebo-controlled, double-blind, parallel group comparison study)
Evidence data	Yagi M, Shimode A, Hamada U, <i>et al.</i> Evaluation of the anti-glycation effect and the safety of a vinegar beverage containing indigestible dextrin and a mixed herbal extract: A placebo-controlled, double-blind study. <i>Glycative Stress Res.</i> 2014; 1 (1): 14-24.
Data overview	100 mg of product, 840 mg of acetic acid and 5 g of indigestible dextrin per day ingested for 8 weeks Decrease in stratum corneum CML, increase in hemoglobin oxygen saturation index (an index for complexion) and reduction in AST

Verification method	Clinical study (placebo-controlled, double-blind, parallel group comparison study)
Evidence data	Kawai H, Shoshihara M, Kawakami H, <i>et al.</i> Anti-glycation and skin beautification properties from ingestion of mixed herb extract: A placebo-controlled, double-blind, randomized, parallel-group study. <i>Glycative Stress Res.</i> 2016; 3 (4): 236-245.
Data overview	100 mg of product per day ingested for 12 weeks Decrease in blood 3DG, reduction in skin melanin index and color difference b* (yellowness index) on the upper arm, reduction in brown spots on facial skin, and increase in hemoglobin oxygen saturation index (an index for complexion) on the cheek skin

### 3. Product Information

Product name	AG Herb MIX
Distributor name	ARKRAY, Inc.
Product overview	Mixed herb extract (food ingredient)
Product appearance/photograph	 <p>Characteristics: Powder</p>
Ingredients	Mixed herb extract (Dextrin, Dokudami, Hawthorn berries, Roman chamomile, Grape leaves)
Mechanism	Mixed herb extract inhibits the production of AGEs
Adequate daily intake	100 to 600 mg
Expected effect	Skin beautification effect (improvement in yellowing, reduction in melanin index and brown spots, improvement in complexion), improvement in skin elasticity, anti-aging of complete body due to inhibition of AGEs production
Sales start date	June, 2006