**Pueraria lobata** – Kudzu

**Pueraria lobata** 1:2 Fluid extract

**Common Names:** Kudzu, Japanese Arrowroot, Gegen

**Botanical family:** Fabaceae

**Part Used:** Root, flower

**Dosage:** 25-70 ml per week

**Primary Active Constituents:** Isoflavones including puerarin, daidzin, genistin, genistein, tectorigenin, glycitin, tectoridin, and other flavonoids, coumarins, & puerarols.

**Contraindications:** Avoid during pregnancy. CYP450 inhibitor may affect hepatic drug metabolism.

**Actions:**
- Antidipsotropic (anti-alcohol abuse)
- Anti-inflammatory
- Hepatoprotective
- Hypoglycaemic
- Neuroprotective
- Phytoestrogen

**Main Indications:**
- Alcoholism
- Cardiovascular disease
- Cognitive decline
- Diabetes
- Osteoporosis
- Menopause
- Metabolic syndrome

**Historical Use & Research Summary**

Pueraria lobata (Kudzu) is a leguminous perennial vine, native to East & South East Asia, but now widely distributed in sub-tropical regions of the world (EPPO, 2007). It is classified as a noxious weed in many areas, earning the monikers ‘the plant that ate the South’ and ‘foot-a-night vine’ due to its prolific growth (up to 26 cm per day in the growing season) and capacity to smoother native flora (EPPO, 2007; Enna et al, 2012).

The root extract has been used in Traditional Chinese Medicine for more than 2000 years to treat a variety of conditions, including fever, migraine, allergies, diarrhoea, acute dysentery, deafness, angina, heart attack, hypertension, diabetes and alcoholism (Reppert, 2008; Zhang et al, 2013). Cellular, animal and human studies have provided support for the use of Kudzu in cardiovascular, cerebrovascular, endocrine and metabolic conditions, and their related complications (Wong, 2011).

**Alcoholism**

Daidzein, daidzin and puerarin reduce alcohol intoxication and suppress voluntary alcohol intake (Lin, 1996; Keung, 1998), by raising monoamine oxidase (MAO)/mitochondrial aldehyde dehydrogenase (ALDH) activity ratio and reducing voluntary alcohol intake and alcohol withdrawal symptoms (Zhang, 2010). Human trials using 750mg total isoflavones demonstrated preventative and long-term reduction in alcohol consumption reducing daily drinking by up to 57% (Penetar, 2012).

*Continued overleaf*
Research Summary continued

Alcoholism - continued
Kudzu root extract is also protective against alcohol-induced and non-alcoholic fatty liver disease by reducing oxidative stress and inflammatory cytokines, reversing liver fibrosis (Peng, 2012), and through hepatic leptin signalling activation, improving mitochondrial function, and reducing hepatic lipid accumulation by suppressing lipogenesis (Qiu, 2015).

Cardiovascular & neuroprotective actions
Animal studies have demonstrated Kudzu’s protective effects against sodium-induced hypertension (Carlson, 2008), whilst puerarin has been shown to inhibit plasma renin activity in spontaneously hypertensive rats, and reduce angiotensin II-induced cardiac hypertrophy in mice (Zheng, 2015). The anti-inflammatory and hypolipidaemic effects of Kudzu protect against inflammatory-mediated vascular smooth muscle cell proliferation that causes atherosclerosis (Li, 2015, Sham, 2014), and reduces the inflammatory cascade responsible for the progression of traumatic brain injury following cerebral ischaemia (Su, 2011). Kudzu root extract decreased cognitive impairment in animal models, with Kudzu supplemented mice & rats displaying improved learning and memory abilities compared with control groups (Carlson, 2008).

Diabetes / Metabolic syndrome
Kudzu root has potent anti-diabetic, anti-obesity, and hypolipidaemic effects, being shown to inhibit carbohydrate absorption, increase peripheral glucose uptake and glucose tolerance, increase insulin sensitivity in adipose, skeletal muscle and liver tissue and decrease peroxidation/apoptosis of pancreatic ß-islet cells (Wang, 2013, Carlson, 2008). Puerarin also reduces diabetic complications including alleviating diabetic neuropathy (Zheng, 2015) and protecting against diabetic cataract (Dodda, 2014). Puerarin showed a dose-related decrease in serum and hepatic levels of total cholesterol, triglycerides and leptin, plus a significant reduction in fat accumulation and body weight gain by enhancing lipolysis and supressing fat synthesis, as well as protecting against liver injury associated with a high fat diet in animal and human studies (Zheng, 2015, Kamiya, 2011).

Menopause / Osteoporosis
The reduction of oestrogen levels during menopause results in a number of psychological and physiological changes for women including the increased risk of osteoporosis, breast cancer, hot flushes, obesity, high cholesterol, hypertension and cardiovascular disease. Kudzu has demonstrated a preventative effect on bone loss by increasing bone mineral density and bone mineral content in ovariectomised and orchidectomised animal studies, without exhibiting oestrogenic effects (Jia, 2012). Puerarin has also demonstrated a significant increase in blood calcium, blood phosphorus, alkaline phosphatase (ALP, a biochemical marker for bone turnover) and osteoprotegerin (Wang, 2013; Li, 2015). Kudzu also demonstrated multiple metabolic effects in ovariectomised rats, including an increase in serum oestrogen levels, decreased blood fats, significantly improved bone mineral density and hepatoprotective effects (Lim, 2013).

Cancer-protective
Puerarin has been shown to induce apoptosis and suppress tumour cell proliferation in a number of cancer cell studies in a dose and time dependent manner, including colon cancer, oesophageal cancer, hepatocellular cancer, breast cancer, lymphoma and glioblastoma (Yang, 2015). Potential benefits including anti-proliferative effects in endometriosis have also been suggested (Ji, 2013).

References
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Pueraria lobata
Suggested Combinations

Alcohol
- Dan Shen
- St John’s Wort

Fatty Liver Disease
- Dan Shen
- Astragalus
- Milk thistle

Cardiovascular disease
- Dan Shen
- Hawthorn

Menopause
- Dong Quai
- Black cohosh

Diabetes
- Holy basil
- Gymnema
- Fenugreek

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