

## Whether to Supplement the Diet with Emodin?

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More and more research concerns natural compounds that have a positive effect on the cell. Emodin (Figure 1) is compound found in plants as *Polygonum multiflorum*, *Rheum palmatum* and *Reynoutria japonica* used in Chinese medicine. Anthraquinone compounds have long been known as gentle or strongly laxatives. Plant row materials containing these compounds are used in chronic constipation caused by movement disorders of the large intestine. *Polygonum multiflorum* is widely distributed in south-east Asia and used in the diet for prolonging life span and increasing energy, learning and memory [1].

Research doctor Ying Len from Chinese Academics of Science on mice with obesity has shown that this resin belonging to the group of anthraquinone compounds lowered the sugar level and insulin in blood. Emodin also influenced insulin resistance and normalized the lipid profile. There was a decrease in weight and reduced abdominal obesity. Antioxidant emodin is a selective inhibitor of  $11\beta$ -hydroxysteroid dehydrogenase type1 ( $11\beta$ -HSD1) which explain the ability to reduce insulin resistance and remove other symptoms of diabetes (Medycyna 18 august 2010).

The issues like ischemic attack are important because of incidence of its dangerous stroke occurring in seniors. This findings has not been investigated till now in human neuronal cells. Even short phase oxygen-glucose deprivation (OGD) conditions may cause irreparable injuries in neuronal cells. We must remember that reoxygenation occurring than may also worsen neuronal injury because of promotion oxidative stress generally through OGD/R pathway. When are exposed to oxidative stress, genetic factors involved in cell death are activated inducing apoptosis or necrosis. Referring to the study Park's Sun Young we can note that emodin protect human neuronal cells SH-SY5Y against oxygen-glucose de-

privation/reoxygenation (OGD/R) lead to neurotoxicity by nuclear factor-E2 (Nrf2)/antioxidant response elements (ARE) through the AMPK/ glycogen synthase kinase  $3\beta$  (GSK3 $\beta$ ) pathway (Figure 1) [2]. Furthermore emodin from *Polygonum multiflorum* saved mouse neuronal cells HT-22 exposed glutamate from reduced viability by activating the PI3K/Akt signal pathway [2].

**Figure 1:** Mechanism of neuroprotective emodin properties.

There are also other results, study of Ramanasamy Harikrishnan's demonstrated that emodin acts as an immunostimulant enhancing the specific and nonspecific immune defence giving increased disease protection. Authors found that *Clarias batrachus* against *Aeromonas hydrophila* fed emodin growth better and hae-

matology parameter are boosts [3] what has been successfully introduced outside its native range in several countries for intensive aquaculture.

Therefore emodin may be multidirectional, useful for treating disorders like diabetes type 2, neurodegenerative disorders and may function as immune defence.

### Bibliography

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