Royal Jelly

TRADE NAMES

Royal Jelly is available from numerous manufacturers generically. It is also available in combination products. Branded products include Premium Royal Jelly (American Health).

DESCRIPTION

Royal jelly, also known as gelee royale and RJ, is the milky-white gelatinous substance secreted from the cephalic glands of nurse worker bees *(Apis mellifera)* for apparently the sole purpose of stimulating the growth and development of the queen bee. Without royal jelly, the queen bee would be no different from the worker bees and would live about as long (seven to eight weeks). With royal jelly, the queen bee can live five to seven years. This fact explains the popular belief that royal jelly has rejuvenating qualities.

Royal jelly, however, has not lived up to expectations that it is an important anti-aging substance. But it is not without medical interest. Royal jelly consists of an emulsion of proteins, sugars, lipids and some other substances in a water base. Proteins make up about 13% of royal jelly. Most of the proteins comprise a family called major royal jelly proteins. One protein in royal jelly called royalsin possesses antibiotic properties against gram-positive, but not gram-negative, bacteria. About 11% of royal jelly is made up of sugars, such as fructose and glucose, similar to those found in honey. Lipids comprise about 5% of the substance and consist mainly of medium-chain hydroxy fatty acids, such as trans-10-hydroxy-2-decenoic acid, which is also thought to possess antimicrobial properties.

Royal jelly also contains vitamins, such as pantothenic acid, minerals and phytosterols. Neopterin, or 2-amino-6- (1,2,3-trihydroxypropyl)-4 (3H)-pteridinone, was initially isolated from royal jelly. Neopterin is also found in humans, and, although its precise role is not known, it appears to play an important role in the human immune system.

Melbrosia, a mixture of royal jelly and bee pollen, is sometimes used by menopausal women to manage climacteric symptoms.

ACTIONS AND PHARMACOLOGY

ACTIONS

Royal jelly may have hypolipidemic, antibacterial, anti-inflammatory and antiproliferative activities.

MECHANISM OF ACTION

The mechanism of actions of royal jelly is not known. The possible antibacterial activity of some royal jelly proteins, while of interest for topical use, is unlikely to be expressed when ingested.

PHARMACOKINETICS

There are no reported pharmacokinetic studies of royal jelly. Proteins, carbohydrates and lipids in royal jelly should be digested, absorbed and metabolized in the same way that other such substances found in food are digested, absorbed and metabolized.

INDICATIONS AND USAGE

Royal jelly may have favorable lipid effects, including cholesterol-lowering effects. There is very preliminary evidence that it may have some antibiotic, immunomodulatory, anti-inflammatory, wound-healing and anti-cancer effects.

RESEARCH SUMMARY

A meta-analysis of royal jelly's reported effects on serum lipids in experimental animals and in humans found significant, positive results. The substance significantly decreased serum and liver total lipids and cholesterol in rats and mice, and retarded the formation of atheromas in the aortas of rabbits fed hyperlipidemic diets. Meta-analysis of controlled human studies also showed significant reduction in total serum lipids and cholesterol, and, in those with hyperlipidemia, it normalized HDL- and LDL-cholesterol determined from decreases in beta/alpha lipoproteins. The author of this meta-analysis concluded: "The best available evidence suggests that royal jelly, at approximately 50 to 100 milligrams per day, decreased total serum cholesterol levels by about 14% and total serum lipids by about 10% in the group of patients studied."

One group of researchers has reported that a royal jelly extract has potent antibiotic effects against gram-positive bacteria, but not against gram-negative bacteria. Royal jelly has exhibited immunomodulating effects in an animal model, stimulating antibody production and immunocompetent cell proliferation.

It has been claimed, anecdotally, for some time that royal jelly has anti-inflammatory effects and wound-healing properties. These claims were given preliminary support in a study of streptozotocin-diabetic rats. The researchers were looking for a hypoglycemic effect from royal jelly; none was found, but the researchers noted that royal jelly showed some anti-inflammatory activity and that it shortened healing time in desquamated skin lesions.

There have been scattered repots that royal jelly and its constituent 10-hydroxy-2-decenoic acid might have anti-cancer effects. There was one report that both provided complete protection against transplantable mouse leukemia. Tumor growth inhibition of other cancers has been associated with royal jelly supplementation in other animal models. More research is needed.

CONTRAINDICATIONS, PRECAUTIONS, ADVERSE REACTIONS

CONTRAINDICATIONS

Royal jelly is contraindicated in those allergic or hypersensitive to any of its components.

PRECAUTIONS

Pregnant women and nursing mothers should avoid using royal jelly supplements.

ADVERSE REACTIONS

Adverse reactions have included eczema, rhinitis, urticaria and bronchospasm. There is one report of a woman developing hemorrhagic colitis following use of royal jelly for approximately one month. Acute asthma, anaphylaxis and, in one case, death secondary to royal jelly-induced asthma have also been reported.

OVERDOSAGE

No reported overdosage of royal jelly.

DOSAGE AND ADMINISTRATION

Those who use royal jelly take 50 to 100 milligrams daily. Royal jelly is also available in cosmetic formulations. Those who are allergic or hypersensitive to royal jelly may develop dermatitis conditions from topical use.

HOW SUPPLIED

Capsules — :im 100 mg, 200 mg, 300 mg, 500 mg, 1000 mg, 1500 mg, 2000 mg

Chewable Tablets — 100 mg

Elixir — 167 mg/5 ml, 667 mg/5 ml

Liquid — 659 mg/teaspoonful (in a honey base)

LITERATURE

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