

# MERCILESS KILLER OF BACTERIAS AND VIRUSES

## Daruna

Chronic viral diseases have always been a real disaster of India. High density of population and climate of this country foster the spread of various infections. In fact, the most ancient medicine on earth - the traditional system of Indian medicine Ayurveda - has many recipes for treating viral diseases and their consequences.

Famous Russian scientist, specialist in Ayurveda, Dr. habil. med., Professor of Department of Anatomy, Physiology and Life safety at Novosibirsk State Pedagogical University and Department of Fundamental Medicine at Novosibirsk State University, author of 150 published issues on Ayurveda, Subotyalov M. A., based on his 20 years of experience in the study of problems of rehabilitation (recovery) after a viral disease, has developed a unique, one of a kind, product "Daruna" which is based on plants from the Golden Fund of Ayurveda.

"Daruna" is translated from Sanskrit as "merciless." That was the name of the formulation used in Ayurveda by patients with a chronic virus. It is important to remember that our body is able to cope with any challenge. We should only create a suitable environment to help him. "Daruna" will help you with this.

Plants included in the composition of "Daruna" have a multilateral effect on your body. They have been used in Ayurveda traditions for a long time. These plants were described in such works as "Dhanvantari-nighantu" and other authentic sources of Ayurveda.

The name of "Daruna" means "harsh" or "merciless" and it reflects the nature of its effect on viruses and pathogens which cause various infectious diseases. Other properties of the formulation include reducing of high blood pressure in people prone to hypertension and normalization of blood sugar level with constant use of the extracts included in "Daruna", and many others.

## **Phyllanthus niruri**

This plant grows in India, in moist and shady areas. Scientific research has proved the positive effect of Phyllanthus niruri against hepatitis B. Substance entering into the composition of this plant, inhibits the multiplication of viruses causing chronic hepatitis. It also restores functions of liver.

Phyllanthus niruri is an effective treatment of fatty hepatosis. It has hypoglycemic effect and is able to normalize the level of triglycerides and cholesterol. Phyllanthus niruri is able to inhibit the angiotensin-converting enzyme which results in a hypotensive effect. Phyllanthus niruri is also famous for its antioxidant activity.

## Terminalia Chebula

Terminalia Chebula is one of the most famous and unique plants (in its properties) of Eastern medicine. It grows mainly in North India. The name of this plant in Sanskrit means “the ability to cure all diseases”.

Studies have shown the ability of substances included in the composition of this plant, to inhibit the replication of cytomegalovirus. One of these substances, Galic acid and its ester, has an antibacterial effect and shows strong activity against Hepatitis B virus and Human Immunodeficiency Virus.

Terminalia Chebula is famous for its cardiotonic action due to the presence of Chebulinic acid. Mild laxative effect of this plant is widely known in Oriental medicine. It doesn't have any side effects.

## Eclipta alba

This plant grows mainly in humid hot areas. Eclipta alba is a hepatoprotector. It is also used for treating colds and even various bleeding. Scientific studies have shown its positive effect in treating Viral Hepatitis. Eclipta alba has a choleric action.

Columbine which is included in the composition of Eclipta Alba, has a hypotensive action without side effects. It is also famous for its antiulcer and anti-inflammatory effects.

“Daruna” usage instructions (as a complementary agent used in a combined therapy):

- Liver diseases, including Chronic Viral Hepatitis;
- Chronic and acute viral and bacterial infections (influenza, cytomegalovirus infection, tuberculosis, etc.);
- Hyperthermia;
- Parasitic invasion;
- Heart diseases;
- Peptic ulcer disease, gastritis;
- Constipation;
- Skin diseases;
- Type 2 diabetes mellitus;
- Migraine;
- Hypertension.

## Instructions for use

**Revitalizing effect:** for the prevention of viral infections take “Daruna” one time a day continuously.

**Desirable course of treatment:** to improve the functional state of liver and digestive tract take “Daruna” two times a day throughout the year.

**Intensive course of treatment:** for acute and chronic viral infections take “Daruna” four times a day for six months.

**Packaging size:** 120 capsules in a jar.

## Clinical research

### Phyllanthus niruri

Clinical studies<sup>1</sup> conducted among 55 patients with Chronic Viral Hepatitis have shown that 30 patients who were treated with *Phyllanthus niruri*, recovered within three months. Others have significantly improved their functional state during the next three months. Liver functions of all patients have been significantly improved and multiplication of Hepatitis B virus has been suppressed.

Another study<sup>2</sup> showed that antigen of Hepatitis B HBAg is totally absent in the blood of 59% of patients who received *Phyllanthus niruri*.

Aqueous extract of *Phyllanthus niruri* not only increased the lifespan of rats-carriers of HCC (hepatocellular carcinoma) caused by the effect of N-nitrosodiethylamine, from 33 to 52 weeks, but also normalized the level of gamma-glutamyl transpeptidase and marker of SCC activity in blood serum.<sup>3</sup>

Ethanollic extract showed a hepatoprotective effect in rats from the toxic effects of alcohol and the occurrence of cytotoxicity caused by carbon tetrachloride and galactosamine in primary cultured hepatocytes of rats.<sup>5</sup>

The extract of *Phyllanthus niruri* inhibited the secretion of HBAg in cell lines of hepatocellular carcinoma of a person due to its ability to inhibit the transcription of RNA of Hepatitis B virus and increase the activity of Hepatitis B enhancer. In addition, it reduced the polymerase activity of Hepatitis B virus and reduced episomally content of DNA of Hepatitis B.<sup>6</sup>

### Terminalia Chebula

Mr. Badmaev and Mr. Novakovsky<sup>7</sup> have tested *Terminalia Chebula* on the culture of the cell line of epithelial tissue (MDCK) for its protective activity against cytopathic action of influenza virus. It was found that *Terminalia Chebula* in the form of decoction, prepared as prescribed, protects epithelial cells from damage caused by the influenza virus. There were 23 herbs tested for its effects on the skin cells. When applied on the skin, only *Terminalia Chebula* showed a significant protective effect.

Selective bioassay of *Terminalia Chebula* fruits has identified four inhibitors of HIV-1 integrase, Gallic acid, and three galloyl-glucose.<sup>8</sup> Galloyl plays an important role in inhibition of 3'-processing of HIV-1 integrase.

*Terminalia Chebula* is also known for its significant inhibitory activity against reverse transcriptase of HIV.<sup>9</sup>

Kurokawa and others<sup>10</sup> have reported the efficiency of *Terminalia Chebula* against HSV-1 (herpes simplex virus). *Terminalia Chebula* reduces the amount of virus particles in the cells of brain and skin, even better than with acyclovir therapy. And when using therapy with herbal extract, it is more effective against herpes in the brain in comparison with acyclovir.

A group of researchers from Japan<sup>11</sup> proved that *Terminalia Chebula* has antiviral activity against cytomegalovirus (CMV). Shiraki and other researchers<sup>12</sup> called *Terminalia Chebula* as one of the medicinal plants which is able to inhibit replication of

human CMV and mouse CMV in the laboratory, and hypothesized about the benefits of this plant for prevention of CMV disease in patients with weakened immune systems.

*Terminalia Chebula* acts as an agent which improves the motility of the gastrointestinal tract. Rats of American researcher Charles Foster were given *Terminalia Chebula* (100 mg/kg/day for 15 days orally), metoclopramide or atropine, which established pro-kinetic and anti-cinetic actions, respectively. It was discovered that *Terminalia Chebula* increases the percentage of gastric emptying. Increased gastric emptying was comparable with producible metoclopramide. This indicates that *Terminalia Chebula* can be a useful alternative to pro-cinetic drugs which are available today.<sup>13</sup>

*Terminalia Chebula* is an antibacterial, antioxidant, anti-inflammatory and immunomodulating agent. It was discovered that local administration of alcoholic extract of *Terminalia Chebula* leaves cures a patient much faster. It is associated with decreased period of epithelialization.

The limit of tensile strength of fabric, which is treated with *Terminalia Chebula* has been increased by 40%.<sup>14</sup>

### ***Eclipta alba***

In 1968, the researchers reported the effectiveness of *Eclipta alba* in the treatment of hyperchlorhydria.<sup>15</sup>

Later, during clinical studies, this was applied to 22 patients with non-ulcer dyspepsia and 8 patients with duodenal ulcer. When *Eclipta alba* has been used for 6 weeks, researchers observed a significant reduction in the gastric acidity. Approximately 90% of patients with dyspepsia have been cured, while the body state of about 87% of patients with peptic ulcer disease was significantly improved.

Having noticed this efficiency, a team of scientists evaluated the effectiveness of *Eclipta alba* against non-ulcer dyspepsia and duodenal ulcer in 60 cases (35 patients with non-ulcer dyspepsia and 25 - with duodenal ulcer). The powder of the whole plant has been given in a daily dose (30 g, in three divided doses) for 1 month to a group of patients with non-ulcer dyspepsia and to a group of patients with a duodenal ulcer for 3 months.

The presented drug has caused symptomatic relief in most patients and a significant decrease in acidity of gastric juice in both groups. Approximately 80% of patients with non-ulcer dyspepsia responded positively to this therapy. Radiological improvement was observed in 75% of cases. Approximately 48% of patients in this series received a great relief. Later, another group has confirmed the efficiency of *Eclipta alba* in 60% of cases (clinical studies of 935 patients) with duodenal ulcer, when taking the drug for 3 to 6 months.

In a clinical study (n = 55), *Eclipta alba* demonstrates a notable symptomatic relief in patients with non-ulcer dyspepsia and ulcer. A common reaction in non-ulcer dyspepsia was great at 62.9%, good at 17.1%, normal is 5.7%, and 14.3% of patients did not participate in the study. Radiological study has confirmed symptomatic improvement.

In a group of 25 patients with duodenal ulcer 48% had an excellent response, 24% had good response and 16% showed a weak response, 12% had no response to treatment.

*Eclipta alba* has also shown a significant reduction of hydrochloric acid and total acidity in both groups (non-ulcer dyspepsia and peptic ulcer disease).<sup>16</sup>

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<sup>2</sup>Mehrotra, R. et al., In vitro effect of *Phyllanthus amarus* on hepatitis B virus, *Indian J. Med. Res.*, 93, 71, 1991.

<sup>3</sup>Rajeshkumar, N.V. and Kuttan, R., *Phyllanthus amarus* extract administration increases the life span of rats with hepatocellular carcinoma, *J. Ethnopharmacol.*, 73, 215, 2000.

<sup>4</sup>Prabhakar, S., Hepatoprotective activity, *Ayurmedline-Hepatitis*, 29, 2002.

<sup>5</sup>Jayaram, S. and Thyagarajan, S.P., Inhibition of HBsAg secretion from Alexander cell line by *Phyllanthus amarus*, *Indian J. Pathol. Microbiol.*, 39, 211, 1996.

<sup>6</sup>Lee, C.D. et al., *Phyllanthus amarus* down-regulates hepatitis B virus mRNA transcription and replication, *Eur. J. Clin. Invest.*, 26, 1069, 1996.

<sup>7</sup>Badmaev, V. and Nowokewski, M., Protection of epithelial cells against influenza A virus by a plant derived biological response modifier Ladretan-96, *Phytother. Res.*, 14, 245, 2000.

<sup>8</sup>Ahn, M.J. et al., Inhibition of HIV-1 integrase by galloyl glucose from *Terminalia chebula* and flavonol glycoside gallates from *Euphorbia pekinensis*, *Planta Medica*, 68, 457, 2002.

<sup>9</sup>EI-Mekkawey, S. et al., Inhibitory effects of Egyptian folk medicines on human immunodeficiency virus (HIV) reverse transcriptase, *Chem. Pharm. Bull.*, 43, 641, 1995.  
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<sup>10</sup>Kurokawa, M. et al., Efficacy of traditional herbal medicines in combination with acyclovir against herpes simplex virus type 1 infection in vitro and in vivo, *Antiviral Res.*, 27, 19, 1995.

<sup>11</sup>Yukawa, T.A. et al., Prophylactic treatment of cytomegalovirus infections with traditional herbs, *Antiviral Res.*, 32, 63, 1996.

<sup>12</sup>Shiraki, K. et al., Cytomegalovirus infection and its possible treatment with herbal medicines, *Nippon.Rinsho.*, 56, 156, 1998.

<sup>13</sup>Tamhane, M.D. et al., Effect of oral administration of *Terminalia chebula* on gastric emptying: an experimental study, *J. Postgrad. Med.*, 43(1), 12, 1997.; Miglani, B.D., Sen, P., and Sanyal, R.K., Purgative action of an oil obtained from *Terminalia chebula*, *Indian J. Med. Res.*, 59(2), 281, 1971.

<sup>14</sup>Suguna, L. et al., Influence of *Terminalia chebula* on dermal wound healing in rats, *Phytother. Res.*, 16(3), 227, 2002.

<sup>15</sup>Chaturvedi, G.N. and Singh, R.N., Treatment of hyperchlorhydria with an indigenous drug *Eclipta alba*, *Curr. Med. Pract.*, 8, 283, 1968.

<sup>16</sup>Tiwari, S.K., Chaturvedi, G.N., and Gupta, J.P., Comparative Studies on Gastroduodenal Diseases (Amlapitta and Parinamashula) in Ayurveda and Modern Medicine with Therapeutic Evaluation of *Bhringaraja* (*Eclipta alba*) in Peptic Ulcer and Nonulcer Dyspepsia, Ph.D. thesis, I.M.S., Banaras Hindu University, Varanasi, India, 1979.