

Vitamin-B 17: An Alternative Treatment of Cancer- A Myth or Truth

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Abstract

Amygdalin is also called Vitamin B17 and its semi synthetic product is laetrile, is a glycoside nutrient associated with cancer prevention in substitute medicine practices — and there are some claims that Amygdalin actually cured cancer. Vitamin B17 is derivative of natural food sources and most rich in seeds of apricots and apples. Amygdalin interacts with other antioxidants like vitamin A along with enzymes found in the pancreatic juice to break down and eliminate injurious cells from the body. This makes it useful for support, immunity and potentially even various forms of disease prevention. Vitamin B17 scientifically named mandelonitrile beta-D-gentiobioside, is consider a nitriloside (a natural cyanide-containing substance). Laetrile (semi synthetic) is synthesized by hydrolysis reaction of amygdalin and extract out in the form of vitamin B17, is most well-known for potentially helping prevent cancer development through the production of hydrogen cyanide and is released into the body's tissues and targets and destroys mutated cells. Still more clinical studies are needed which prove that amygdalin is effective to cure cancer. Amygdalin have Cyanide is thought to be the main anti-cancer component of vitamin B17 but is not fully proven in clinical studies as of today that it is a myth or truth.

Keywords: Amygdalin, Cancer, Apricots, Peaches, Laetrile.

INTRODUCTION

Amygdalin (Vitamin B17) is a glycoside which is extract out from natural food like seeds of apples and apricots, lima beans, clover and sorghum. Vitamin B17 has different names as amygdalin or laetrile. Vitamin B₁₇ also known as Amygdalin and its semi synthetic is a cyanogenic glycoside derived from the aromatic amino

acid phenylalanine. The main anticancer activity of amygdalin is due to cyanide group as shown in figure 1. During the tissue damage the enzyme and amygdalin activated which are present in separate locations and start hydrolysis reaction. This provides a natural defense system [1-3]

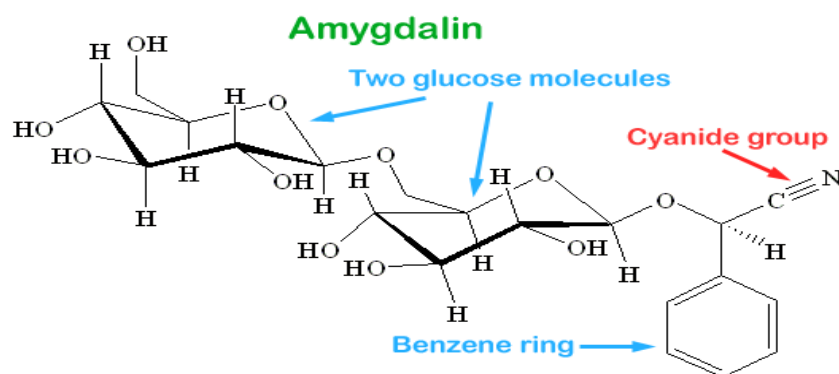


Fig. 1. Structure of Amygdalin [4]

During clinical studies on animals it was found that Amygdalin which is present naturally in apricot (1.4%), peach (0.68%), bitter almond (5%) and plum (0.04–1.7%), and also in the seeds of the apple (0.3%) enhance the body immunity system. The stones are removed out of the fruit and broken to obtain the kernels, which are dried in the in dry heat ovens. The kernels

are boiled in alcohol like ethanol and continue until evaporation of the solution is complete and then addition of diethyl ether, amygdalin is precipitated as minute white crystals [5-7]

Conversion of Amygdalin to Laetrile

Laetrile is synthesized by hydrolysis of amygdalin as shown in figure 2.

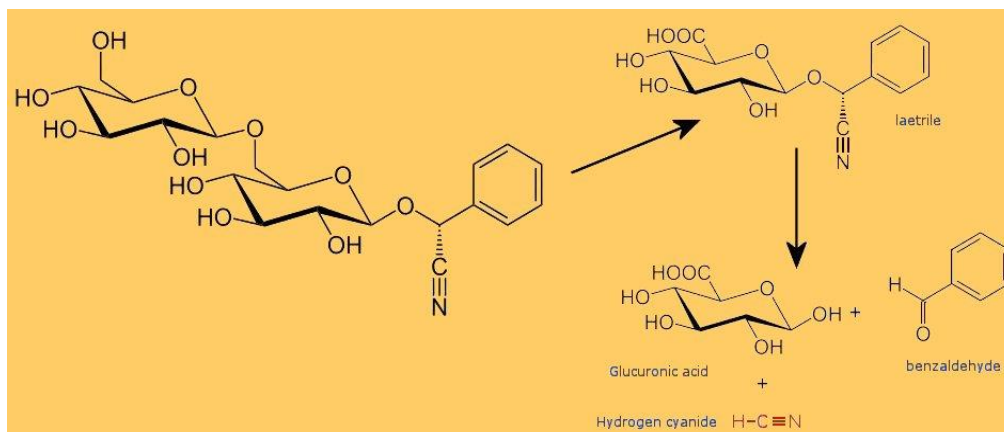


Fig: 2. Conversion of Amygdalin to Laetrile [8]

Laetrile is semisynthetic form of amygdalin. Laetrile is synthesized from amygdalin by hydrolysis. The most abundant commercial source of amygdalin is apricot kernels. Since last decades, both amygdalin and a adapted form named laetrile have been promote as alternative cancer treatments. But during clinical studies have found that amygdalin is ineffective to suppress cancer cells growth and cause cyanide poisoning when taken by oral route. Laetrile is the name of a drug molecule which was given in 1952 by Dr. Ernst T. Krebs. Naturally amygdalin is found in the following:

- ✓ **Raw nuts:** Such as bitter almonds, raw almonds and macadamia nuts.
- ✓ **Vegetables:** Carrots, celery, bean sprouts, mung beans, lima beans and butter beans.
- ✓ **Seeds:** Millet, flaxseeds and buckwheat.
- ✓ **Pits of:** plums, apricots, cherries and apples.

POTENTIAL BENEFITS OF LAETRILE

Some research studies found that amygdalin or (vitamin B17) the natural form of laetrile, may have other health benefits. Benefits of amygdalin for Health:

✓ **It may lower blood pressure:**

In one study, amygdalin lowers systolic blood pressure by 28.5% and diastolic blood pressure by 25%. These effects will be improved when taken with vitamin C.

✓ **It may relieve pain:**

Animal clinical studies prove that amygdalin help relieve pain caused by inflammatory conditions, such as joint pains, arthritis. But human clinical studies are still awaited.

✓ **It may boost immunity:**

A test-tube study found that amygdalin improved the ability of immune cells to fight with cancer cells [9-11]

MECHANISM OF ACTION OF VITAMIN B 17

According to research conducted by Ernest T. Krebs Jr. Rhodanese is the human body enzyme which is found entire whole body except at the tumour cells. This enzyme can convert cyanhydric acid (present within B17) into thiocyanate. Thiocyanate has positive effects on the organism as lowering the blood pressure and is precursor for vitamin B12 and the enzyme Beta-Glucosidase found in very large quantities host at the cancer cell but not present in any other normal body cells. In the normal healthy volunteer who have no cancer in the body then there is no Beta-Glucosidase enzyme [12-14]. Vitamin B₁₇ is made up of Chemical composition of B17 consists of one molecule benzaldehyde (which is a painkiller) and one molecule hydrogen cyanide (cyanhydric acid) with two molecules of glucose.

- When Vitamin B₁₇ is introduced to the body, it is broken down by the enzyme Rhodanese.
- This enzyme split the Hydrogen Cyanide and Benzaldehyde down into two by-products, Thiocyanate and benzoic acid which are beneficial in nourishing healthy cells and forms the

metabolic pool production for vitamin B17 .

- When the B₁₇ comes into contact with cancer cells, there is no Rhodanese to break it down and neutralize it but instead, only the enzyme Beta-Glucosidase is present abundantly in cancer cells.
- When B₁₇ and Beta-Glucosidase make contact with each other, a chemical reaction initiated and the Hydrogen Cyanide and benzaldehyde combine synergistically to produce a poison which destroys and kills the cancer cells as shown in figure 3. This whole process is known as selective toxicity. Only the cells which have tumour or cancer growth are specifically targeted and destroyed [15-17]
- Another study reported by Cancer Epidemiology Biomarkers and Prevention (CEBP), who have family history of colon cancer may be able to reduce their risk of developing the disease with a few simple dietary changes. It appears a diet high in folic acid, high in methionine (an essential amino acid), and low in alcohol intake, significantly reduced colon cancer risk in those with a family history of the cancer disease. [18]

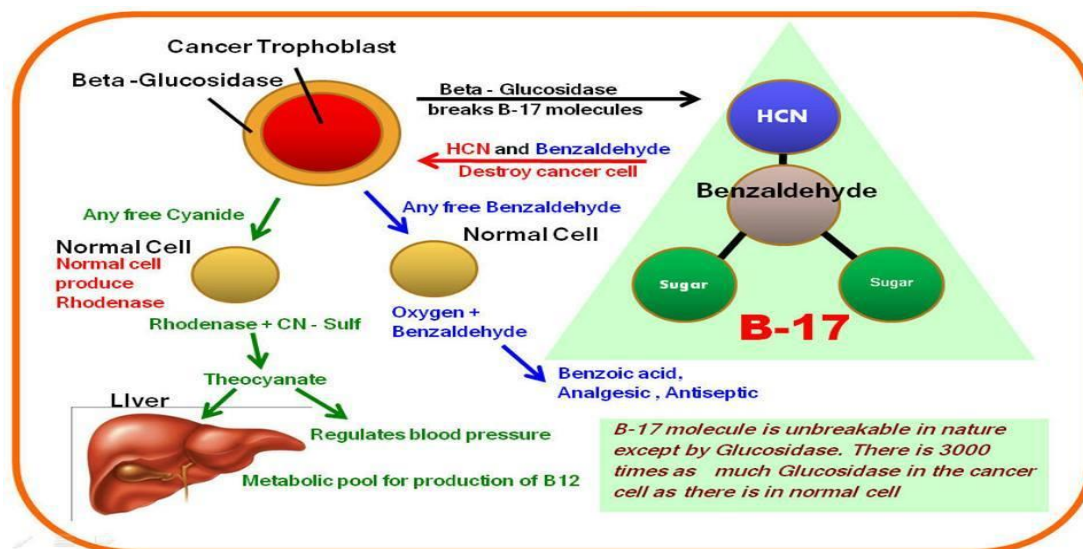


Fig: 3. Mechanism of Action of Amygdalin/ Laetrile [12]

SUMMARY AND DISCUSSION

Amygdalin, Laetrile or B17 is a natural substance, which found in apricot stones, while B17 is present in stones of peaches, cherries, plums or apples, buckwheat, broccoli, spinach, cauliflower or cashew nuts. The unique medicinal features of B17 lead to the result that B17 can be appreciated as nutrition for healthy cells and a fatal for cancer cells. Treatment of cancer by natural sources called natural regulation of our metabolism; it can be represents as a “natural chemo therapy”. So, vitamin B17 acts as natural chemotherapy in colon cancer, in addition to protect the people who have a family history with colon cancer but there is no clinical evidence so it’s just a myth. This paper highlighted the truth that amygdalin plays a supporting role in the treatment of cancer, diabetes, atherosclerosis, immune suppression, leprosy and other diseases because there is no clinically proven data or studies which prove that amygdalin has anticancer property. Amygdalin has a clear pharmacological activity, but still requires depth research on the pharmacological mechanism of the compound, so it has an important application value to systematically investigate the role, mechanism of amygdalin its pharmacological action and develop antitumor drugs.

CONCLUSION

Amygdalin, Laetrile or B17 is a natural chemical substance, which is found in apricot stones, while vitamin B17 is present in stones of peaches, cherries, plums or apples, buckwheat, broccoli, spinach, cauliflower or cashew nuts. The unique feature of vitamin B17 concluded that B17 can be cherished as nutrition for healthy cells and a lethal for cancer cells. Once the therapy is modified to the natural regulation of our metabolism, it can be represents as a “natural chemo therapy”. So, vitamin B17 acts as natural chemotherapy in cancer treatment in

addition to protect the people whose have family history with cancer. Still a lot of work is required to prove that vitamin B 17 have anti cancer activity because till date there is no clinical evidence to proved its anticancer activity so still it’s just a myth that amygdalin have anticancer activity.

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