

The Pharmacologically Active Ingredient of Noni

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In The Bulletin, April 1972, Maria Stewart described how the Hawaiians solved many of their medical problems by drinking infusions of the fruit of the Noni tree (*Morinda citrifolia*, Rubiaceae). The missionaries, who frequently had to minister to the body as well as the soul, were impressed with the efficacy of these options. Yet identifying the pharmacologically active ingredient of Noni has been difficult – for an understandably good reason. The active ingredient is not present in the plant or fruit! Only after the portion has been drunk does the active ingredient form. Sometimes!

My search for the ingredient which is active in Noni began with a series of studies on the pineapple plant. Since about 1972 I had been attempting to identify the unknown ingredient in “bromelain” which gives crude preparations of this enzyme their potent pharmacological properties. (Sometimes!) After many discouraging years of research I eventually identified this ingredient as a new alkaloid to which I gave the name “xeronine.” Noticing that the clinical claims of efficacy for bromelain and Noni were practically identical, I tried the same techniques on Noni fruit, which I have developed for isolating xeronine from the pineapple plant. The technique worked! Not only was I able to isolate the same compound from Noni fruit, but the yields were excellent. Today Noni is one of the best raw materials to use for the isolation of xeronine.

Xeronine is a relatively small alkaloid, which is physiologically active in the picogram range. (Ed. Note: a picogram is one trillionth of a gram.) It occurs in practically all healthy cells of plants, animals and microorganisms. However, the amount of free alkaloid is minute and is well below the limits of normal chemical analytical techniques.

Even though Noni fruits have a negligible amount of free xeronine, they contain appreciable amounts of the precursor of xeronine. This precursor, which I have named “proxeronine,” is a strange molecule. The molecular weight is relatively large, namely about 16,000. In contrast to most plant colloids, this colloid contains neither sugars, amino acids nor nucleic acids. Thus most biochemists have overlooked this relatively abundant molecule, which occurs in most tissues.

Noni fruits also contain the inactive form of the enzyme, which releases xeronine from proxeronine. Unless this proenzyme becomes properly activated, however, Noni juice will cause few pharmacological reactions. Fortunately if Noni juice is taken on an empty stomach, the critical proenzyme escapes digestion in the stomach and enters the intestines. Here the chances are high that it may become activated.

Many years of research are still required to demonstrate convincingly how xeronine functions at the molecular level in a cell. In the meantime I can suggest certain hypotheses, which can act as a guide

in planning experiments. I am basing these hypotheses both on clinical results with bromelain pills as well as on a limited number of laboratory and animal experiments carried out with pure xeronine.

I am proposing that the primary function of xeronine is to regulate the rigidity and shape of specific proteins. Since these proteins have different functions, we have the usual clinical situation where administering one simple drug causes an unbelievably wide range of physiological responses.

The action which xeronine has on a person depends upon which of his tissues has a sub optimal level of xeronine. Thus xeronine can alleviate certain subsets of almost any known disease. For no disease, however, will xeronine be a panacea. A physiological disease, for example senility, may be caused by a deficiency or imbalance of a number of different biochemicals as well as by malfunctioning blood vessels, hormone systems or immune bodies. Only if the disease is specifically caused by lack of xeronine will xeronine alleviate the symptoms of the problem.

I believe that each tissue has cells, which contain proteins, which have receptor sites for the absorption of xeronine to become active. Thus xeronine, by converting the body's procollagenase system into specific protease, quickly and safely removes the dead tissue from burns. It is for this reason that allows bromelain and Noni are such effective treatments for burns. Other proteins become potential receptor sites for hormones after they react with xeronine. Thus the action of ginseng, bromelain and Noni in making a person feel well is probably caused by xeronine converting certain brain receptor proteins into active sites for the absorption of the endorphin, the "well-being hormones." Other proteins form pores through membranes in the intestines, the blood vessels and other body organs. Absorbing xeronine on these proteins changes the shape of the pores and thus affects the passage of molecules through the membranes. Thus the action of bromelain, Noni and ginseng in improving digestion may be ascribable to this action. These are just a few of the many exciting actions of this newly discovered alkaloid. Since Noni is a potential source of this alkaloid, Noni juice can be a valuable herbal remedy.

There are some practical problems, however, in using Noni juice as a medicine or tonic. If one is dying and all other remedies have failed, then and only then will the average person drink Noni juice. The flavor of juice made from ripe Hawaiian Noni is terrible. None of my colleagues would touch the untreated juice. Even after I had removed most of the disagreeable flavor (several organic acids) from the juice, my colleagues still found it unfit to drink. For a price the odoriferous chemicals can be removed from the Hawaiian variety. However, other varieties grown in other Pacific Islands are milder in flavor.

Another critical problem in using Noni juice as a medicine or health tonic is timing. If the juice is drunk on a full stomach, it will have very little beneficial action. The Pepsin and acid in the stomach will destroy the enzyme, which liberates xeronine. For a seriously sick person taking the juice on an empty stomach rarely poses a problem; the patient is too sick to want to eat anything. However, for the average person who wants to drink Noni juice as a health tonic, timing is critical. I would recommend

taking 100 ml on Noni juice a half hour before breakfast. At this time the juice will pass rapidly through the stomach and into the intestines, where it may be converted into the active enzyme. At any other time of the day, especially at meal times, the primary effects of drinking Noni juice will be psychological and caloric. Because of the strong flavor the psychological effect might not necessarily be positive. To obtain the maximum effect of the active ingredient in Noni, I would recommend also that Noni juice not be taken with coffee, tobacco or alcohol. At times the combination of these materials and Noni can give some unexpected side effects. At other times the combination merely lowers the potentially beneficial effect of xeronine.

In light of the new information on the action of xeronine what are some of the possible applications of Noni juice? First I should make the caveat that for all of the possible applications, which I am listing, one must always add the phrase "some types but not other types." Some of the problems which drinking Noni juice might favorably affect are: high blood pressure, menstrual cramps, arthritis, gastric ulcers, sprains, injuries, mental depression, senility, poor digestion, atherosclerosis, blood vessel problems, addiction, relief for pain and many others. Although this list looks like a page torn out of traveling medicine man's manual, it is probably conservative.

The old Hawaiian people were truly fortunate to have herbal medical doctors who recognized a valuable natural product and who know how to administer this medicine with the proper psychological persuasion.

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