



# Madagascar Periwinkle As Natural Diabetic Medicine – A Gift To Mankind

**ARUNA AASIRVATHAM**

---

Bio-Informatics, Former Bharathiar University Student, Coimbatore, India.  
arunabioinformatics@gmail.com

## ABSTRACT

Madagascar periwinkle has got the most medicinal properties. Madagascar periwinkle belonging to the genus catharathus is found all over the world and it very common here in India. Madagascar periwinkle plant is called ‘Sadabahar’ plant in Hindi and ‘Nithyakalyani’ in Tamil. It is called ‘Nithyakalyani’ because it flowers daily year round and there are two varieties that are common in India. One variety produces white flowers and the other produces beautiful dark pink flowers. Madagascar periwinkle is a very common garden plant that you will find in most nurseries. Can you believe that this simple unassuming plant is saving thousands of lives every year? Periwinkle is used for treating type 2 diabetes. **It has been used in traditional medicine for thousands of years for treating various diseases and especially it is very famous for its use in treating diabetics. These studies where undertaken to find the medicinal uses of periwinkle plant in treating diabetes and found that these plants can lower blood sugar level. It is also tested in a patient suffering from diabetes (my mom) for last two months and positive results were found.**

Through these studies it is confirmed this medicinal plant can lower the blood sugar level.

## Keywords

Tyrosine phosphatase protein, Type2 diabetes, vindolicine, vindolinine, vindolidine

## INTRODUCTION

Catharanthus roseus, commonly known as bright eyes, Cape periwinkle, graveyard plant, Madagascar periwinkle, old maid, pink periwinkle, rose periwinkle, is a species of flowering plant in the family Apocynaceae. The parts that grow above the ground are **used to** make medicine. Despite serious safety concerns, **Madagascar periwinkle is used for** diabetes, cancer, and sore throat. It is also **used as** a cough remedy, for easing lung congestion, and to reduce fluid retention by increasing urine production (as a diuretic) this valuable natural product has been used as an anti-**cancer** drug since it was discovered in the 1950s by a Canadian research team. A potent inhibitor of cell division and used against lymphomas and testicular, breast, bladder and lung **cancers**, it is found in the leaves of Madagascar **periwinkle** (Catharanthus roseus) Catharanthus roseus, more commonly known as the **Periwinkle** of **Madagascar**, is a native species to the Indian Ocean island of **Madagascar**. **Madagascar** is **located** off the east coast of Southern Africa. The **Periwinkle** is a perennial plant that is very prevalent in areas that are tropical to sub-tropical. Madagascar **periwinkle** seems to be able to lower blood sugar. There is some concern that it might lower blood sugar too much in people with **diabetes** who are using anti-diabetes medications.



### MADAGASCAR PERIWINKLE PLANT

**Taxonomic Description**

<b>Kingdom</b>	<b>Plantae</b>
<b>Division</b>	<b>Magnoliophyta</b>
<b>Class</b>	<b>Magnoliopsida</b>
<b>Order</b>	<b>Gentianales</b>
<b>Family</b>	<b>Apocynaceae</b>
<b>Genus</b>	<b><i>Catharanthus</i></b>
<b>Species</b>	<b><i>C. roseus</i></b>

**Botanical name:** *Catharanthus roseus*

**Common name:** Rosy/Pink/Madagascar periwinkle (English)  
Chichirica (Tagalog)

### PLANT ALKALOIDS

**Alkaloids** are found primarily in **plants** and are especially common in certain families of flowering **plants**. More than 3,000 different types of **alkaloids** have been identified in a total of more than 4,000 **plant** species

Alkaloids are a huge group of naturally occurring organic compounds which contains nitrogen atoms.

A member of a large group of chemicals that are made by plants and have nitrogen in them.

Alkaloids may function as plant stimulants or regulators in activities like growth, metabolism and reproduction.



### USES OF PERIWINKLE:

The periwinkle plant is mainly used in the treatment of diabetes. It is used as a medicinal plant in many countries all over the world for many diseases. Traditional doses have included 10 leaves and 10 flowers boiled in water as a tea, or 9 pink flowers in 0.5 L of water for 3 hours ("solar tea") sipped throughout the day. Periwinkle has likely been used for medicine for a long time; its Latin name, *Vinca*, is derived from the Latin word *vincere*, meaning "to overcome." European herbalists have used periwinkle for headaches, vertigo, and poor memory since medieval times.<sup>1</sup> It was also considered a helpful remedy for conditions with a watery or bloody discharge such as diarrhea, bleeding gums, or menorrhagia and diabetes.

Table 1: Uses of periwinkle in different country

Sl No	Country	Use
1	India	The juice of leaves is used as application to bee sting/ wasp sting
2	Philippines	Decoction of leaves is used in diabetes and decoction of young leaves is used in stomach cramps, root decoction is used for intestinal parasitism. Infusion of leaves is used for treating menorrhagia. Crude leaf extracts and root has anti cancer activity. Roots used for dysentery
3	Madagascar	The bitter and astringent leaves are used as vomitive, roots used as purgative, vermifugl, depurative, hemostatic and toothache remedies
4	Mauritius	The juice of leaves is used for indigestion and dyspepsia
5	West Indies and Nigeria	The plant is used in diabetes
6	Cuba and Jamaica	Flower extract is used for eye wash in infants
7	Bahamas	Decoction of flower is used in asthma, tuberculosis and flatulence
8	Malaysia	The plant is used in diabetes, hypertension, insomnia and cancer
9	Hawai	Extract of boiled plant is used to arrest bleeding
10	America	Gargle of plant is used to ease soarthroats, chest ailments and laryngitis
11	Africa	Leaves are used for menorrhagia and rheumatism

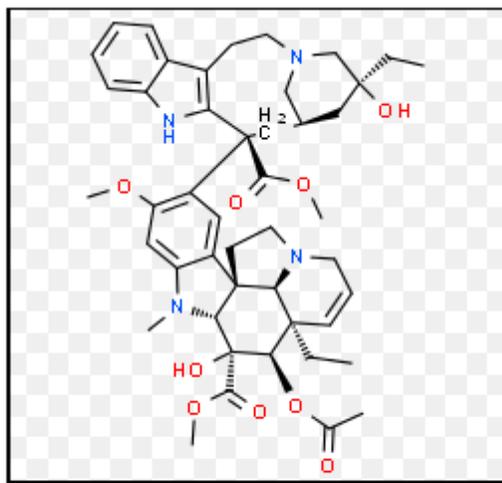
## IRREGULAR MENSTRUATION

6 to 8 fresh leaves of the plant are boiled with 2 cup of water and reduced to half a cup. This is taken regularly for three consecutive menstrual cycles. This controls the heavy menstrual flow and regularizes scanty flow too. This kind of folk practice is evident in Sirsi, Honnavar, Bhatkal, Ellapur places of Karnataka.

## ANTI-CANCER DRUG

The team in the laboratory of professor Sarah O'Connor at the John Innes center have after 15years of research located the last missing gene in the genome of periwinkle that are devoted in building the chemical vinblastine.

In 1950s by a Canadian research team, it was found in the leaves of Madagascar periwinkle. It takes approximately 500kg of dried leaves to produce 1g of Vinblastine. Science daily.com(may 3<sup>rd</sup> 2018).



STRUCTURE OF VINBLASTINE

## ANTI DIABETIC PROPERTY:

The aqueous extract was found to lower the blood glucose of about 20% in diabetic rats when compared to that of the dichloromethane and methanol extracts which lowered the blood glucose level to 49-58%. The effect has appeared due to the result of the increased glucose utilization in the liver. All the four alkaloids vindoline, vindolicine and vindolinine were isolated and identified from the dichloromethane extract of catharanthus leaves induced relatively high glucose uptake in pancreatic  $\beta$ -Tc6 or myoblast c2c12 cells, with vindolicine showing the highest activity. In addition, compounds **vindolidine**, **vindolicine** and **vindolinine** demonstrated good protein **tyrosine phosphatase 1B (PTP-1B)** inhibition activity, implying their therapeutic potential against type 2 diabetes (Tiong et al, 2013).

## CHEMICAL COMPOUNDS IN PERIWINKLE(DIABETES)

The three chemical compounds vindolinine, vindolicine, vindolidine demonstrated good protein tyrosine phosphatase with the therapeutic potential against type2 diabetes. They are identified from the dichloromethane extract of catharanthus leaves. The identified compounds are injected in pancreas of rat and it reduces the glucose level.

vindolinine shows very good result in lowering the blood glucose level when compared to other two compounds.

### VINDOLININE

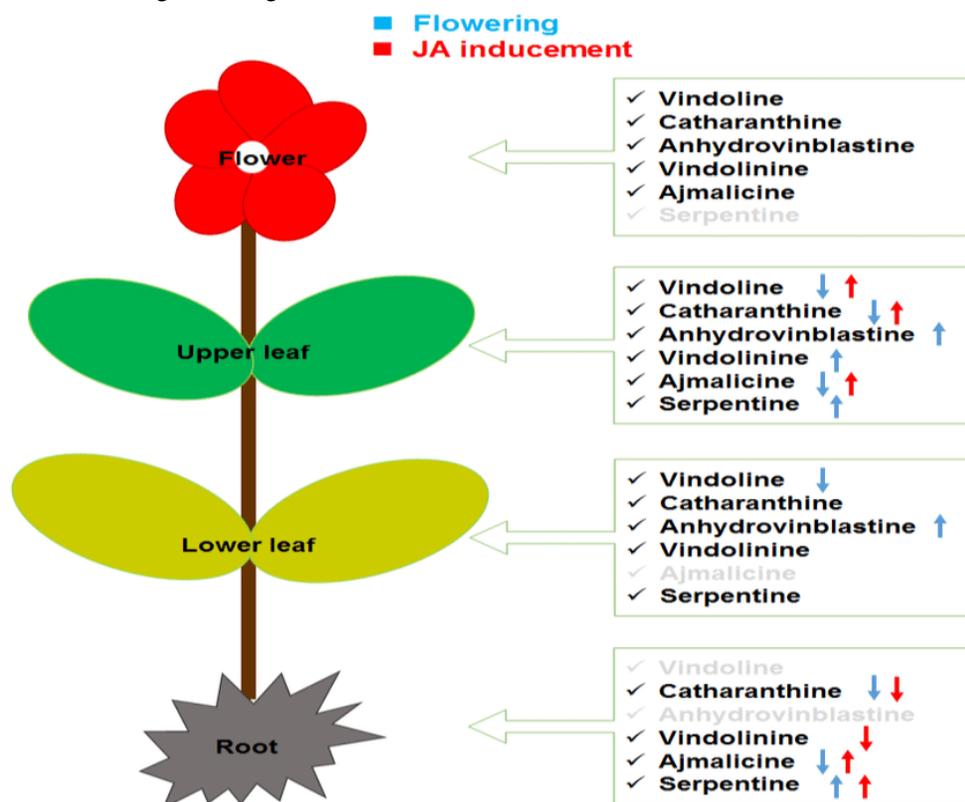
Vindolinine is a monoterpenoid indole alkaloid with formula  $C_{21}H_{24}N_2O_2$ , isolated from several plant species. It has a role as a plant metabolite.

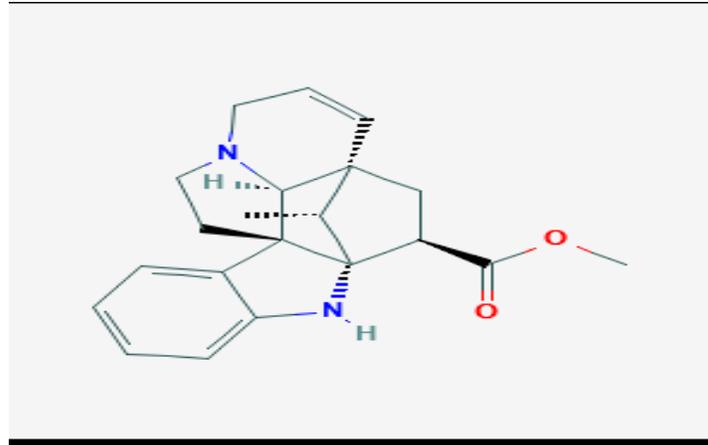
PubChem CID :24148538

Molecular Formula : $C_{21}H_{24}N_2O_2$

Synonyms :Vindolinine5980-02-9Vindolinin(-)

Molecular Weight :336.4 g/mol

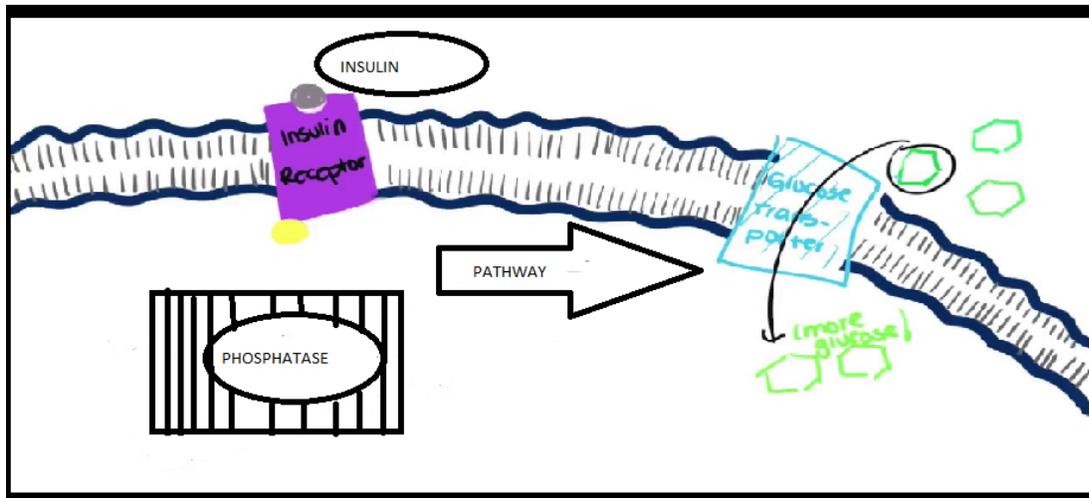




VINDOLININE

## ROLE OF TYROSINE PHOSPHATASE PROTEIN IN DIABETES

Type 2 or non-insulin-dependent diabetes mellitus (NIDDM) is reaching epidemic proportions in industrialized countries. Obesity is a major factor in this disease, since about 75% of obese individuals will develop type 2 diabetes. There is an urgent need to develop new therapies for these diseases. Recently, the protein tyrosine phosphatase PTP-1B has been shown to be a negative regulator of the insulin signaling pathway, suggesting that inhibitors of this enzyme may be beneficial in the treatment of type 2 diabetes. Mice lacking PTP-1B are resistant to both diabetes and obesity.



## **DIABETES MELLITUS:**

The term diabetes is derived from Latin (originally Greek) and means “to go through or siphon,” referring to a large amount of urine produced by the kidneys. The term mellitus, in Latin, means “sweet.” Diabetes mellitus causes high blood glucose levels and glucose eventually spills into the urine. Diabetes mellitus, commonly known as diabetes, is a metabolic disease that causes high blood sugar. The hormone insulin moves sugar from the blood into your cells to be stored or used for energy. With diabetes, your body either doesn't make enough insulin or can't effectively use the insulin it does make. There are three main types of diabetes **Type1, Type 2** and **Gestational** and each can affect your body in different ways and may require different treatments. Diabetes can be effectively managed when caught early. However, when left untreated, it can lead to potential complications that include heart disease, stroke, kidney damage, and nerve damage.

## **DIABETES MELLITUS SIGNS AND SYMPTOMS**

- Frequent urination.
- Excessive thirst.
- Unexplained weight loss.
- Extreme hunger.
- Sudden vision changes.
- Tingling or numbness in the hands or feet.
- Feeling very tired much of the time.
- Very dry skin

## **PREDIABETES**

Pre-diabetes is when your blood sugar is higher than it should be but not high enough for your doctor to diagnose diabetes. More than a third of people in the United States have it, but most of them don't know it.

Pre-diabetes can make you more likely to get type 2 diabetes and heart disease. Exercising more and losing extra pounds, even as little as 5% to 7% of your body weight, can lower those risks.

## **TYPE 1 DIABETES**

Type 1 diabetes is also called insulin-dependent diabetes. It used to be called juvenile-onset diabetes, because it often begins in childhood.

Type 1 diabetes is an autoimmune condition. It happens when your body attacks your pancreas with antibodies. The organ is damaged and doesn't make insulin.

Your genes might cause this type of diabetes. It could also happen because of problems with cells in your pancreas that make insulin.

Many of the health problems that can come with type 1 happen because of damage to tiny blood vessels in your eyes (called diabetic retinopathy), nerves (diabetic neuropathy), and kidneys (diabetic nephropathy). People with type 1 also have a higher risk of heart disease and stroke.

Treatment for type 1 diabetes involves injecting insulin into the fatty tissue just under your skin. You might use:

- Syringes
- Insulin pens that use prefilled cartridges and a thin needle
- Jet injectors that use high-pressure air to send a spray of insulin through your skin
- Pumps that send insulin through a tube to a catheter under the skin of your belly

A test called the A1C blood test estimates your blood sugar levels over the previous three months. Your doctor uses it to see how well your blood sugar is controlled. That helps them know your risk of complications.

If you have type 1 diabetes, you'll need to make changes including:

- Frequent testing of your blood sugar levels
- Careful meal planning
- Daily exercise
- Taking insulin and other medications as needed

## **TYPE 2 DIABETES**

Type 2 diabetes used to be called non-insulin-dependent or adult-onset diabetes. But it's become more common in children and teens over the past 20 years, largely because more young people are overweight or obese. About 90% of people with diabetes have type 2.

When you have type 2 diabetes, your pancreas usually creates some insulin. But either it's not enough or your body doesn't use it like it should. Insulin resistance, when your cells don't respond to insulin, usually happens in fat, liver, and muscle cells.

Type 2 diabetes is often milder than type 1. But it can still cause major health complications, especially in the tiny blood vessels in your kidneys, nerves, and eyes. Type 2 also raises your risk of heart disease and stroke.

People who are obese -- more than 20% over their target body weight for their height -- have an especially high risk of type 2 diabetes and the health problems that can follow. Obesity often causes insulin resistance, so your pancreas has to work harder to make more insulin. But it's still not enough to keep your blood sugar levels where they should be.

Treatment for type 2 diabetes involves keeping a healthy weight, eating right, and exercising. Some people need medication, too.

The doctor will do a A1C test a few times a year to see how well you've been controlling your blood sugar.

## **GESTATIONAL DIABETES**

Pregnancy usually causes some form of insulin resistance. If this becomes diabetes, it's called gestational. Doctors often spot it in middle or late pregnancy. Because a woman's blood sugars travel through her placenta to the baby, it's important to control gestational diabetes to protect the baby's growth and development.

Doctors report gestational diabetes in 2% to 10% of pregnancies. It usually goes away after birth. But up to 10% of women who have gestational diabetes get type 2, weeks or even years later.

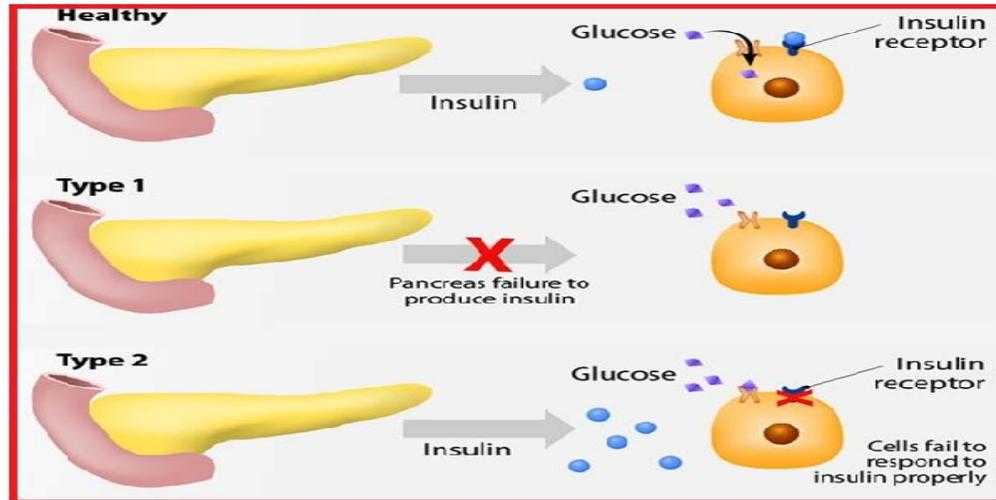
Gestational diabetes is more of a risk for the baby than the mother. A baby might have unusual weight gain before birth, trouble breathing at birth, or a higher risk of obesity and diabetes later in life. The mother might need a cesarean section because of an overly large baby, or she might have damage to her heart, kidney, nerves, and eyes.

Gestational diabetes treatment involves:

- Careful meal planning to make sure you get enough nutrients without too much fat and calories
- Daily exercise
- Keeping weight gain under control
- Taking insulin to control your blood sugar levels, if needed

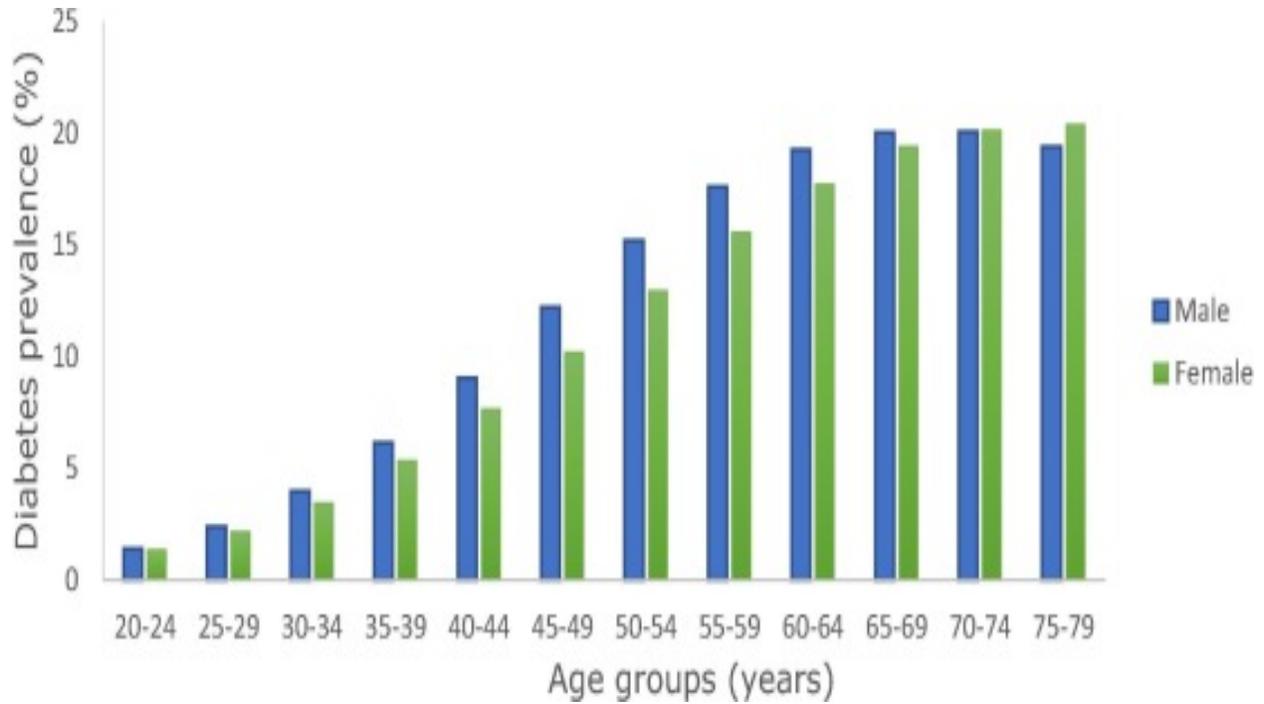
### Other Forms of Diabetes

In 1% to 5% of people who have diabetes, other conditions might be the cause. These include diseases of the pancreas, certain surgeries and medications, and infections. In these cases, your doctor might want to keep an eye on your blood sugar levels



### DIABETES RATE IN INDIA

Diabetes in India. Over 30 million have now been diagnosed with diabetes in India. The CPR (Crude prevalence rate) in the urban areas of India is thought to be 9 per cent. In rural areas, the prevalence is approximately 3 per cent of the total population. Kerala has the largest number of diabetes patients followed by Tamil Nadu and Punjab, according to endocrinologists and diabetologists in the state (Dec 8, 2017). Often known as the diabetes capital of the world, India has been witnessing an alarming rise in incidence of diabetes according to the International Journal of Diabetes in Developing Countries. In patients with diabetes, the absence or insufficient production of insulin causes hyperglycemia. There are estimated 72.96 million cases of diabetes in adult population of India. The prevalence in urban areas ranges between 10.9% and 14.2% and prevalence in rural India was 3.0-7.8% among population aged 20 years and above with a much higher prevalence among individuals aged over 50 years (INDIAB Study).



## EXTENT OF RISK

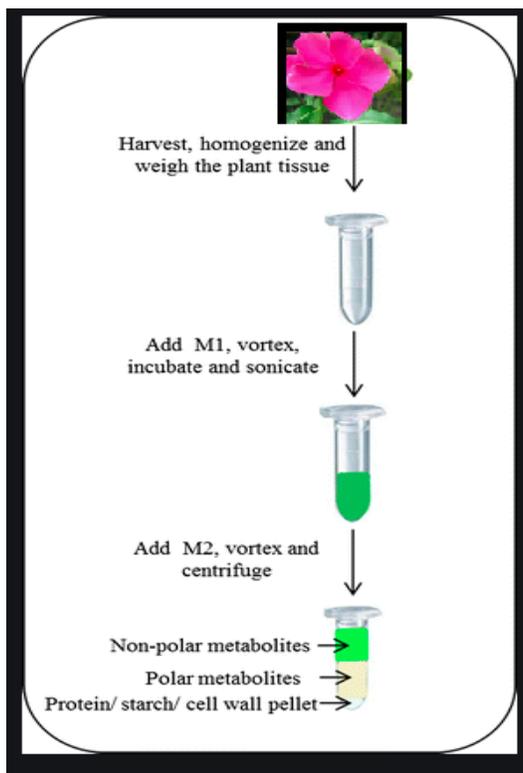
### Among children

States with highest percentage of pre-diabetic children (5-9 years)



## EXTRACTION OF PROTEIN FROM THE PLANT

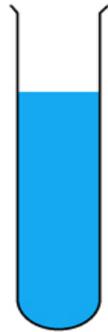
Place the frozen tissue in a mortar containing little sea sand and liquid nitrogen. Grind the tissue to a powder with the mortar and pestle. Add 10 ml **extraction** buffer, contains with 140  $\mu$ l 40 mM PMSF. Grind sample for 2 min or to a homogenate and then transfer into a sterilized 50 ml centrifuge tube. The initial steps of **protein extraction** often involve crude mechanical disruption such as cutting, smashing, or shearing tissue into smaller pieces. If intracellular **proteins** are the target, then detergents can be used to help break apart the phospholipid cellular membrane (cell lysis).



**Protein Extraction Buffer** is a mild, non-denaturing **lysis buffer** designed for quick and effective preparation and **isolation** of total **proteins**. The **buffer** is pH optimized to maximize **protein** yield

**Biuret solution** is used to identify the presence of **protein**. Biuret reagent is a blue solution that, when it reacts with **protein**, will change color to pink-purple

# Biuret Test Result



Blue => Negative  
(Proteins are absent)



Deep purple => Positive  
(Proteins are present)

ChemistryLearner.com

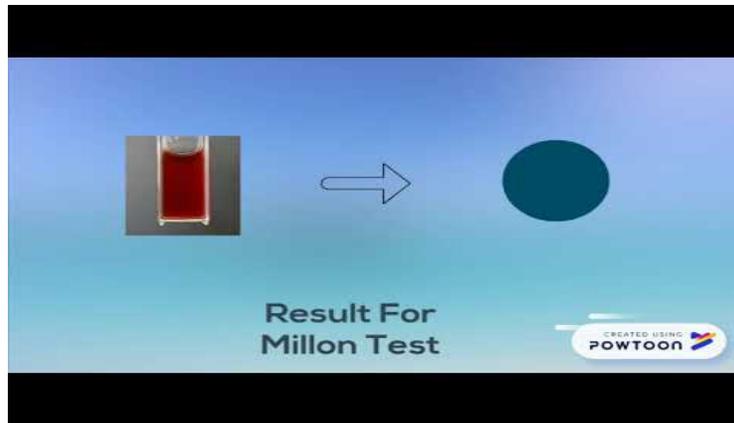
**NINHYDRIN TEST:** The appearance of violet color



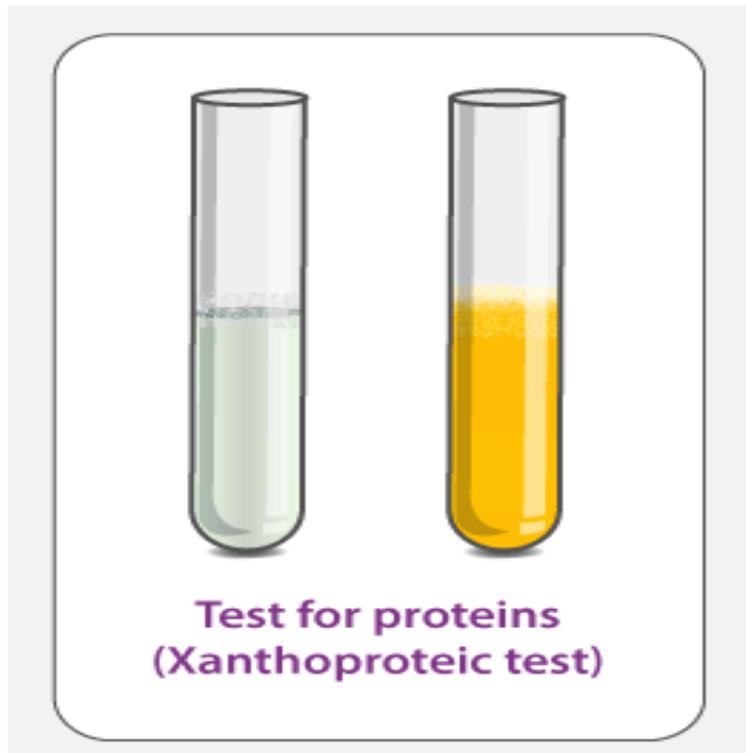
protein absent

protein present

**MILLIONS TEST:** The appearance of brick red color



**XANTHOPROTEIC TEST:** The appearance of yellow



## ISOLATION OF PROTEIN

### ULTRA CENTRIFUGATION

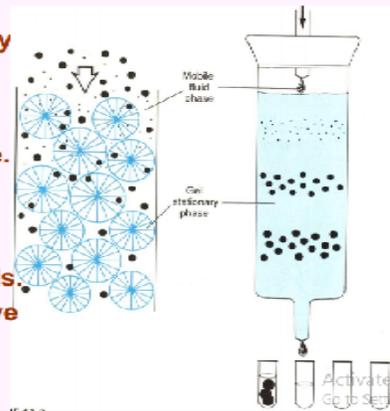
Centrifugation is the process where a mixture is separated through spinning. It is used to separate skim milk from whole milk, water from your clothes, and blood cells from your blood plasma, Plant cell separation. A centrifuge is a laboratory device that is used for the separation of fluids, gas or liquid, based on density. Separation is achieved by spinning a vessel containing material at high speed; the centrifugal force pushes heavier materials to the outside of the vessel.

### CHROMATOGRAPHY TECHNIQUES

Chromatography is one of the most common technique used for purifying and analyzing **proteins**. Centrifugation separates **proteins** based on their rate of sedimentation, which is influenced by their mass and shape. **Chromatography** can be used to separate **protein** in solution or denaturing conditions by using porous gels. This **technique** is known as size exclusion **chromatography**. The **principle** is that smaller molecules have to traverse a larger volume in a porous matrix. Using chromatography techniques it is possible to isolate tyrosine phosphate protein present in the catharathus plant.

### **Gel Filtration Chromatography (Molecular exclusion)**

- **Molecules are separated according to their size.**
- **Molecules are differentially distributed between the fluid space surrounding the gel beads (void volume) and that included in the pores within the gel beads (included volume).**
- **Resolution of gel filtration determined by**
  - **Flow rate (solvent) in relation to column size.**
  - **Sample volume in relation to column size.**
  - **Length/diameter ratio of the column.**
- **The resolving power of this method is less than that of electrophoretic methods.**
- **This method is considered as preparative rather than analytical.**



### Ion Exchange Chromatography

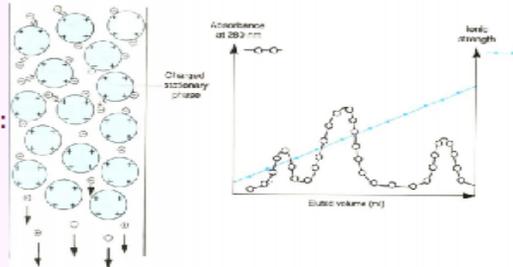
➤ It depends on the net charge of molecules under given solvent conditions and of their retardation on a column derivatized with anionic or cationic residues.

➤ In a population of (-) and (+) charged molecules, their charge properties depend upon the:

- Solvent **ionic composition** and
- Solvent **pH**.

➤ Molecules to be isolated bounded:

- At low ionic strength.
- At pH maximizes their charge.



➤ Molecules are eluted by increasing the ionic strength of the mobile phase or by a change in pH.

Activate  
Go To Sellin

### Ion Exchange Chromatography

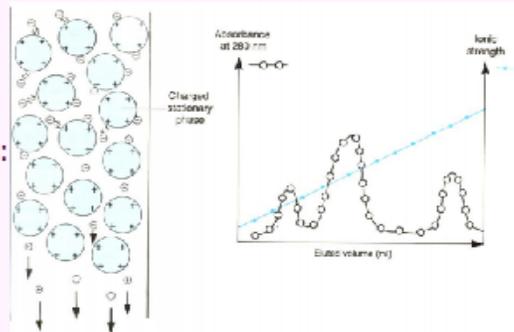
➤ It depends on the net charge of molecules under given solvent conditions and of their retardation on a column derivatized with anionic or cationic residues.

➤ In a population of (-) and (+) charged molecules, their charge properties depend upon the:

- Solvent **ionic composition** and
- Solvent **pH**.

➤ Molecules to be isolated bounded:

- At low ionic strength.
- At pH maximizes their charge.



➤ Molecules are eluted by increasing the ionic strength of the mobile phase or by a change in pH.

Activate  
Go To Sellin

## Affinity Chromatography

➤ Is based on highly specific interaction between the molecule to be purified and a ligand bound to the stationary phase.

**Ex. Antigen - Antibody & Enzyme - Substrate & Receptor protein- its ligand &**

**Glycosylated protein - Specific lectin**

❖ In **immunoaffinity**, dissociation of antibody - antigen complex can be achieved by gradual dropping pH of the mobile phase down to 2.7.

❖ In **receptor - ligand** binding, elution is accomplished by addition of large excess of free ligand

➤ Once the appropriate ligands are available; affinity chromatography considered as powerful method and can isolate a rare proteins from heterogeneous mixture.



## MADAGASCAR PERIWINKLE TO TREAT DIABETES:

Madagascar periwinkle seems to be able to lower blood sugar. There is some concern that it might lower blood sugar too much in people with diabetes who are using anti-diabetes medications. Medication doses might need to be changed. Madagascar periwinkle might decrease blood sugar. Diabetes medications are also used to lower blood sugar. Taking Madagascar periwinkle along with diabetes medications will reduce the blood sugar level. In the Philippines and China, the plant is boiled for several minutes and consumed daily to help manage insulin level in the body and minimize high blood pressure. Madagascar periwinkle contains an alkaloid, reserpine, which is well known for its ability to lower the levels of blood pressure. An excess level of blood pressure is dangerous for your heart. Thus, by maintaining the levels of blood pressure, it protects your heart from various fatal conditions, including stroke.

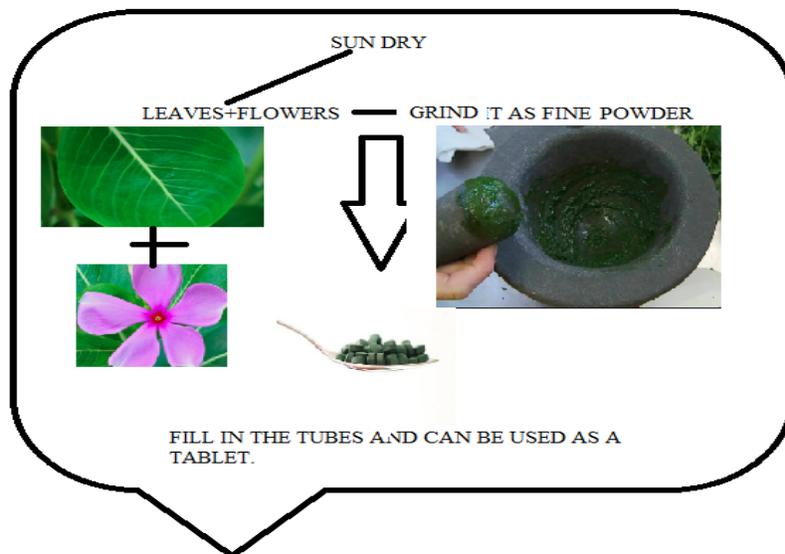
## TEST TO FIND WHETHER PLANT IS POISON OR NOT

- 1) Hold a small portion of the prepared plant part against your lip for 3 minutes
- 2) Place another small portion of the plant on your tongue.
- 3) Chew the plant and hold it in your mouth for 15 minutes.
- 4) Swallow the small portion of the plant.

## MATERIALS AND METHODS

### CAPSULE PREPARATION

Grinding the leaves and flowers from the plant.



### DECOCTION

The leaf juice or water decoction of *Catharanthus roseus* L. (Apocyanaceae) is used as a folk medicine for the treatment of diabetes all over the world. In the present investigation, the leaf juice of *C. roseus* has been evaluated for its hypoglycemic activity in normal and alloxan-induced diabetic rabbits.

### TEA

- . To make periwinkle tea you need 2 teaspoon of dried herbs (which is a mixture of leaf, flower, stem, root etc.)
- Pour boiling water into the cup and let it steep for about 10-15 minutes once it is done, strain to remove the herbs and your cup of periwinkle tea is ready.
- You can add honey or fruit juice to your cup if the taste is too bitter for you.
- You must drink periwinkle tea in the morning before breakfast or it may upset your stomach.

### SYRUP PREPARATION

A plant extract (leaves + flowers) + unfiltered honey + Herbal infusion

(Herbal infusion is a method in which dried herbs 1 to 2 teaspoons +Fresh herbs 2 to 4 spoons are placed in a cup of hot water and strained.

The goal is to reduce the liquid content and thicken the mixture until it's a syrup.

When the syrup is cooled add tinctures

A Syrup can be preserved more safely for shelf life if we add plant essential oils

1drop of essential oil-----1 ounce of syrup.

## CATHARANTHUS POWDER

Periwinkle is used for treating certain kind of cancers successfully and that too leukemia in children. It has been used in traditional medicine for thousands of years for treating various diseases and especially it is very famous for its use in treating diabetics. Dried leaves and flowers are made in powder form and used to treat diabetes. Many leading online shopping sites like Amazon.com and Alibaba.com sell this Catharanthus powder(Nithya kalyani powder)which is used to treat many disease.

## PERIWINKLE AS NUTRITIONAL SUPPLEMENT

This nutritional complement is very appreciated by elderly people. It is also interesting for athletes because it allows during the effort to oxygenate the body and provide food faster to the muscles.

1 to 2 capsules per day, one in the morning and one in the evening 30 minutes before meals.  
For a cure (3 to 6 months): 3 capsules, one in the morning, one at midday and one in the evening 30 minutes a day before meals.

**Para Lesser Periwinkle 90 Capsules**

No reward points for this product.

21,23 €

Reference: PVM

**VOLUME DISCOUNTS**

Quantity	Discount	You Save
2	10%	Up to 4,25 €

**Periwinkle plant tablet is used as a nutritional supplement in many international countries.**

## CATHARANTHUS ROSEA(SADABAHAR)IN AYURVEDA

Ayurvedic expert Dr. Ashutosh Gautam, "sadabahar flowers and leaves are used to control blood sugar levels. One can have herbal tea made from flowers and leaves in the morning or you can also chew some three to four leaves to get effective results."

## HEALTH BENEFITS OF SADABAHAR FOR DIABETES

Sadabahar has long been used in Ayurveda and Chinese medicines and is said to be a time-tested herbal treatment for managing conditions like diabetes, malaria, sore throats and leukaemia. Vinca rosea contains two active compounds, the

alkaloids and the tannins. It is believed that the plant has more than 100 alkaloids, of which vincristine and vinblastine are most notable for their medicinal benefits.

#### How To Use Sadabahar For Diabetes?

1. The fresh leaves of Sadabahar can be dried, powdered and stored in an air-tight container. Consume one teaspoon of this dried leaf powder with a cupful of fresh fruit juice or water daily. The powder may taste bitter.
2. Take not more than three to four leaves of the plant and chew them to manage blood sugar levels through the day.
3. Take the pink coloured flowers of the Sadabahar plant and boil them in a cupful of water. Strain the water and drink it every morning on an empty stomach.

### **BLOOD SUGAR AND PRESSURE**

High blood pressure (Hypertension) can lead to many complications of diabetes, including diabetic eye disease and kidney disease, or make them worse. Most people with diabetes will eventually have high blood pressure, along with other heart and circulation problems.

**Diabetes** damages arteries and makes them targets for hardening, called atherosclerosis. That can cause high blood pressure, which if not treated, can lead to trouble including blood vessel damage, heart attack, and kidney failure.

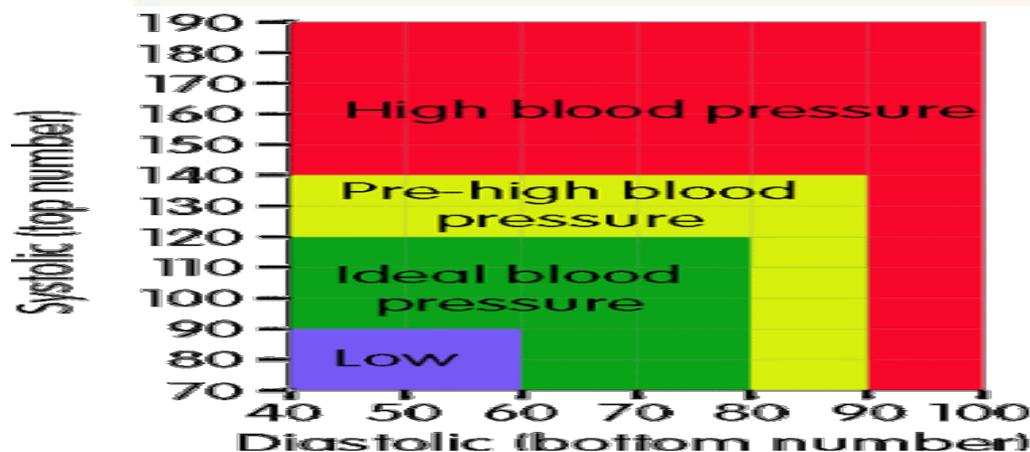
Compared to those with normal blood pressure readings, people with hypertension more often have:

- Coronary artery disease or heart disease
- Strokes
- Peripheral vascular disease, hardening of the arteries in the legs and feet
- Heart failure

Even blood pressure that's at the higher end of normal (120/80 to 129/80), called elevated, impacts your health. Studies show that you have a two to three times greater chance of getting heart disease over 10 years.

### BLOOD SUGAR LEVEL CHART

	FASTING	JUST ATE	3 HOURS AFTER EATING
<b>NORMAL</b>	80-100	170-200	120-140
<b>PRE-DIABETIC</b>	101-125	190-230	140-160
<b>DIABETIC</b>	126+	220-300	200+



**PERIWINKLE PLANT TESTED IN TYPE2 DIABETIC PATIENT:**

The test was done in the patient for the past two months and there was significant change in the blood sugar and pressure level. The patient name is Mary Stella (my mom) for the past two years she was suffering from Type 2 diabetes. In the beginning she took allopathic medicine and the glucose level got controlled but she used to look so tired and she got side effects because of high dose medicines and insulin. So we decided to take Siddha medicine and we consulted a Siddha doctor (One of the Best hospitals in India) I have also attached the prescribed Siddha medicine for diabetes given by the doctor. Along with that Siddha medicine she used to drink periwinkle tea daily morning in an empty stomach. The blood sugar level also got reduced and she feels so much better now. I have attached some of the photos of periwinkle tea preparation by my mom. My grandmother and my relatives also drink this tea made from periwinkle flower and leaves and got good results.

  
 20-H, Avinashi Main Road, Gandhi Nagar, Tirupur - 641603.  
 B.O : 198-A, Kattor Street, P.N.Palayam, Coimbatore - 641037.  
 B.O : 3, Rangasamy Street, Chrompet, Chennai - 600044.  
 GSTNO: 33AADCD5461E120, CIN : U85100TZ2009PTC015543

Patient Name : **MRS.A.MARY** Age : **56** Weight : **58.5** BG : **160**  
**STELLA**  
 Patient Code : **PAT2033** Sex : **Female** BP : **130/90** Date : **18-Dec-2019**

S.No	Medicine Name	Morning	Afternoon	Evening	Night	Before Food	After Food	Comments	Days
1	DIA-G-POWDER-60	1 SP			1 SP	✓		HOT WATER	30
2	DM TAB-30	1/2			1/2	✓		CHEWING	30
3	DAN-DX-120	2			2		✓	MILK	30
4	SIDA-VN-60	1 SP			1 SP		✓	HOT WATER	30
5	PHYLOSRI-200ML	2 ML	2 ML		2 ML	✓		1/4 Cup Water	30
6	MR-15	1			1		✓	ALTERNATIVE DAYS	30
7	ANTOXIN-90			3			✓	1 Tumbler Hot Water	30

Medicine purchase by : Patient

Any Doubt In Medicine / Diet Contact : **[REDACTED]**

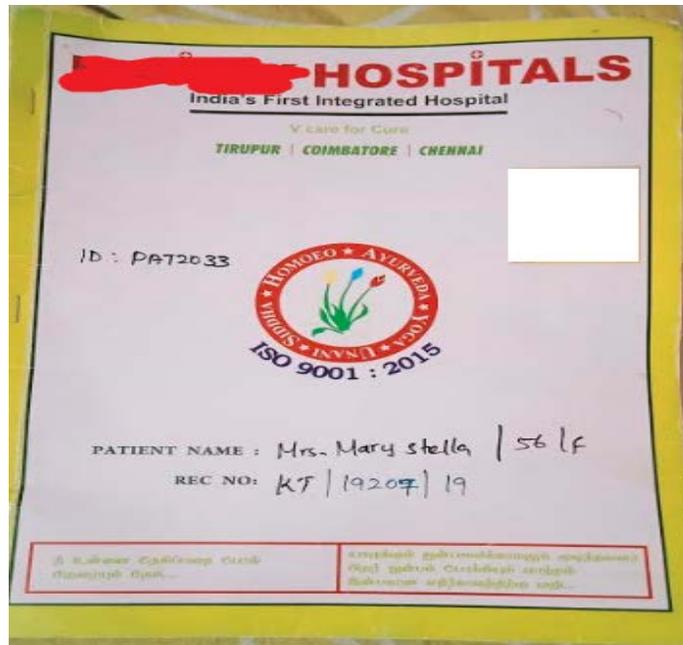
  
 20-H, Avinashi Main Road, Gandhi Nagar, Tirupur - 641603.  
 B.O : 198-A, Kattor Street, P.N.Palayam, Coimbatore - 641037.  
 B.O : 3, Rangasamy Street, Chrompet, Chennai - 600044.  
 GSTNO: 33AADCD5461E120, CIN : U85100TZ2009PTC015543

Patient Name : **MRS.A.MARY** Age : **57** Weight : **58.8** BG : **130**  
**STELLA**  
 Patient Code : **PAT2033** Sex : **Female** BP : **120/80** Date : **20-Feb-2020**

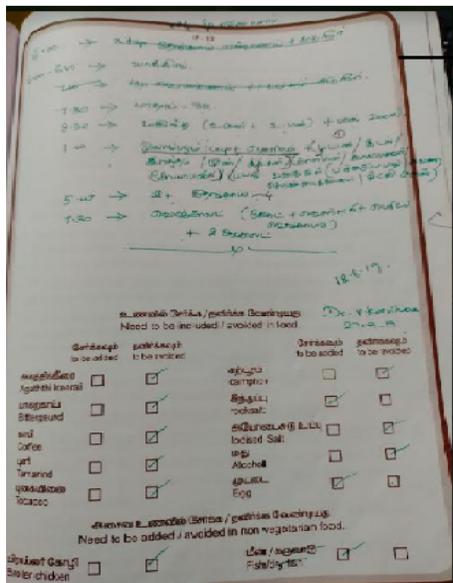
S.No	Medicine Name	Morning	Afternoon	Evening	Night	Before Food	After Food	Comments	Days
1	DIA-G-POWDER-60	1 SP			1 SP	✓		HOT WATER	30
2	DM TAB-30	1/2			1/2	✓		CHEWING	30
3	DAN-DX-120	2			2		✓	MILK	30
4	SIDA-VN-60	1 SP			1 SP		✓	HOT WATER	30
5	ANTOXIN-90			3		✓		1 Tumbler Hot Water	30
6	PHYLOSRI-200ML	2 ML	2 ML		2 ML	✓		1/4 Cup Water	30
7	HEAMULOL-1K-30	1					✓	MILK	30
8	BOCOMD-60	1			1		✓		30
9	MR-15	1			1		✓	ALTERNATIVE DAYS	7

Medicine purchase by : Patient

Any Doubt In Medicine / Diet Contact : **[REDACTED]**



**PATIENTS DIET CHART:**



**DIET CHART**

MORNING - 20 BADAM(Soaked overnight)  
MILK - 1 GLASS  
BREAK FAST: OATS  
LUNCH:1 BOWL VEGETABLE COOKED  
1BOWL CEREAL  
1EGG,CURD,SPINACH  
EVENING:2 SUGAR FREE BISCUIT  
TEA WITHOUT SUGAR  
WALKING FOR 30MINUTES.  
DINNER BEFORE 5PM:SANDWICH IN WHEAT  
BREAD(1CARROT,1ONION,2CUCUMBER,1EGG).  
WEEKLY TWICE COUNTRY CHICKEN AND FISH.

FOODS TO AVOID-  
COFFEE,LEMON,TAMARIND

## PREPARATION PROCEDURE:

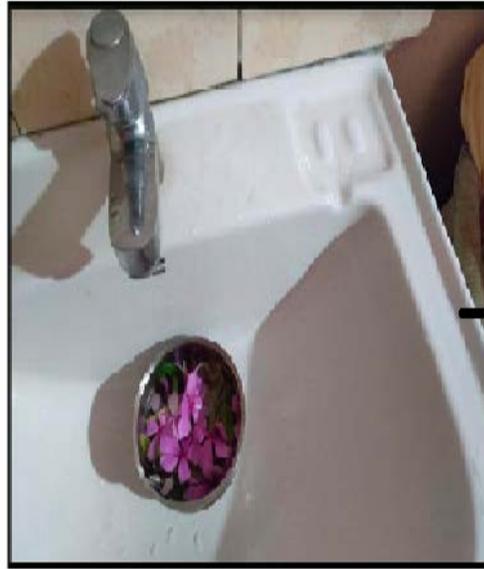


↓  
periwinkle plant leaf and  
flower(rose colour)



flower

leaf



Wash In Tap Water



The Flower Was Boiled and The colour of the flower changes from pink to white(Add 2 glass of water and reduce it to 1 glass)



**MEDICATION +PROPER DIET+EXERCISE+DAILY MORNING EMPTY STOMACH(1 GLASS OF PERIWINKLE TEA)----- VERY GOOD RESULTS AND A GREAT AYURVEDIC METHOD TO FIGHT DIABETES AND TO LIVE A HEALTHY LONG LIFE.**

#### **SCOPE AND LIMITATIONS:**

There is a proverb which comes goes as follows “Too Much Of Anything Is Good For Nothing” so there is a limit to drink this tea (recommended only once in a day, prepared as per the procedure given earlier). So far there has been no report of any adverse reactions or allergy in people taking this drink but the odor of the medicinal preparation is not that much pleasant and people who are sensitive to smell may not like it.

#### **RESULTS AND DISCUSSION:**

The plant has been called a miracle in the prevention of childhood leukemia, diabetes, and cancer treatment. To protect Madagascar periwinkle is to protect the future of your children in the opinion of many. It has been suggested that, instead of using the side effects causing chemical drugs, people should use *Catharanthus roseus* extraction. *Catharanthus roseus* one of the most medicinally valuable plant species of Apocynaceae family, which is used in traditional herbal medicine in the world, and the chemical extraction has a role in cancer treatment. The plant also has along history of use in Ayurvedic medicine, traditional Chinese medicine, western medical science began researching this plant during the 20th century. From the above result it is confirmed that periwinkle can be used to treat diabetes but it should be taken with good medication, proper diet and exercise.

## IN FURTHER STUDIES FOLLOWING OBJECTIVES CAN BE UNDERTAKEN

- 1) Isolating the tyrosine phosphatase protein from the plant and using this plant drugs it is possible to lower blood sugar level.
- 2) It is also found that Vindolinine is the best chemical compound to control glucose level when compared to other two compound using the vinoline it is possible to produce insulin for treating diabetes.
- 3) The plant itself have many good uses and used to cure many diseases. Tea prepared using this plant effectively reduces blood glucose level. so we can use this plant.
- 4) The plant itself was used in many countries for diabetes without taking any other medication they are using this magical plant as diabetic medicine.

## REFERENCES

- 1) Dr. Hemamalini Balaji, Versatile. Therapeutic effects of *Vinca rosea* Linn. *International Journal of Pharmaceutical Science and Health Care*. 2014
- 2) Erdogru. Antibacterial activities of some plant extract used in folk medicine. *Pharm. Biol.* 2002; 40:269-273.
- 3) Wang S, Zheng Z, Weng Y. Angiogenesis and anti-angiogenesis activity of Chinese medicinal herbal extracts. *Life Science*. 2004; 74(20):2467-78.
- 4) Singh SN, Vats P, Suri S. Effect of an antidiabetic extract of *Catharanthus roseus* on enzymic activities in streptozotocin induced diabetic rats. *Journal of Ethnopharmacology*. 2001; 76:269-77.
- 5) Alba Bhutkar MA, Bhise SB. Comparative Studies on Antioxidant Properties of *Catharanthus Rosea* and *Catharanthus*. *International Journal of Pharmaceutical Techniques*. 2011; 3(3):1551-1556.
- 6) Swati Agarwal, Simi Jacob, Nikkita Chettri, Saloni Bisoyi, Ayesha Tazeen, Vedamurthy AB et al. Evaluation of In-vitro Anthelmintic Activity of *Catharanthus roseus* Extract. *International Journal of Pharmaceutical Sciences and Drug Research*. 2011;
- 7) Pillay PP, Nair CPM, Santi Kumari TN. *Lochnera rosea* as a potential source of hypotensive and other remedies. *Bulletin of Research Institute of the University of Kerala*. 1959; 1:51-54.
- 8) Yogesh Patel et al. Evaluation of hypolipidemic activity of leaf juice of *Catharanthus roseus* (Linn.). *Acta Poloniae Pharmaceutica - Drug Research*. 2011;

