

The revolution of endothecare

by NEWPHARM®



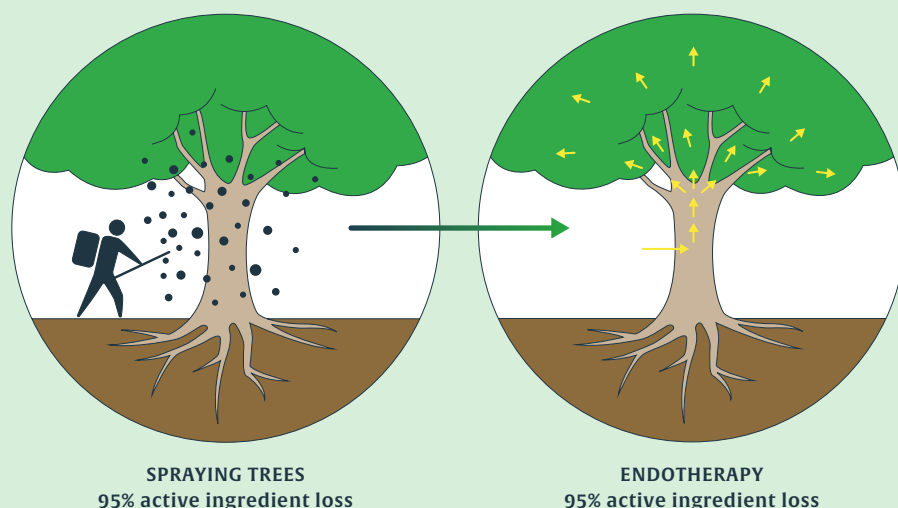
From traditional methods to endotherapy

Traditional plant protection treatments applied to the tree's crown only allow a small percentage of the solution containing the active ingredient to actually reach the "target" to perform its functions. In addition to drastically reducing the amount of plant protection products used, the use of endotherapy saves the surrounding environment and "non-target" organisms from exposure to chemical molecules. Moreover, soil and groundwater are preserved from pollution caused by drift and run-off, and the benefits of treatment are longer lasting than traditional spraying.

Endotherapy eliminates the ingress of harmful agents which can invade the tissues of woody plants whether they are broadleaves or conifers. This practice also allows nutrients to be rapidly taken in and absorbed by tall trees.

ADVANTAGES OF ENDOTHERAPY

- ✔ No spillage of products in the environment.
- ✔ Complete treatment of the vegetation regardless of plant size.
- ✔ Reduced number of treatments needed.
- ✔ High treatment persistence.
- ✔ Eco-sustainable method.



HOW IT WORKS

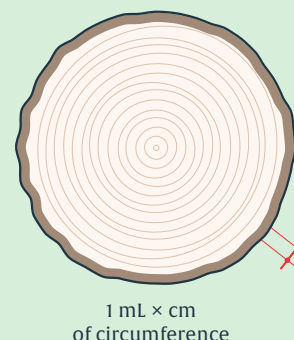
Endotherapy consists of introducing into the outermost conductive tissue of the tree, small quantities of liquids which eliminate harmful agents from the inside. This is made possible by the xylematic sap: by moving from the roots to the crown through channels called xylematic vessels, the xylematic sap carries water and minerals into every part of the crown. With the same principle, beneficial solutions can be introduced into the tree.

PRODUCTS THAT CAN BE USED

The products used in endotherapy are: insecticides, biostimulants and nutrients.

THE QUANTITIES IN ENDOTHERAPY

The quantity of liquid to be introduced into the xylematic vessels is directly proportional to the diameter of the trunk and is usually equal to 1 mL of nutrient or therapeutic solution per each centimetre of the circumference.



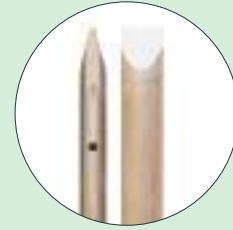
The revolution of endotherapy

The new frontier of endoinfusion begins with the Bitecare® method, a unique system that needs no power source, opens the plant tissues and infuses small quantities of product with beneficial solutions into the xylematic vessels, which are directly under the bark.

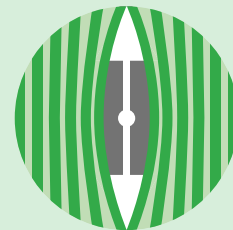
The innovative Bitecare® method **does not cause damage holes** in the trunk to inject the solution, whatever the species. A **needle with a lenticular section** opens the plant fibres while the beneficial solution enters the xylem under atmospheric pressure or low pressure, **avoiding stress or trauma**.

This system leaves no permanent trace on the plant since no holes are drilled. After the extraction of the needle, no specific treatment is required as there is no laceration of the tissues. Targeted application of with natural products (e.g. Propolis) will be sufficient.

Bitecare® was developed following a research conducted by the **Spin-off of the University of Padova PAN/De Rebus Plantarum**. The patented method has received numerous awards and the prestigious United Nations/UNIDO Award in 2016.

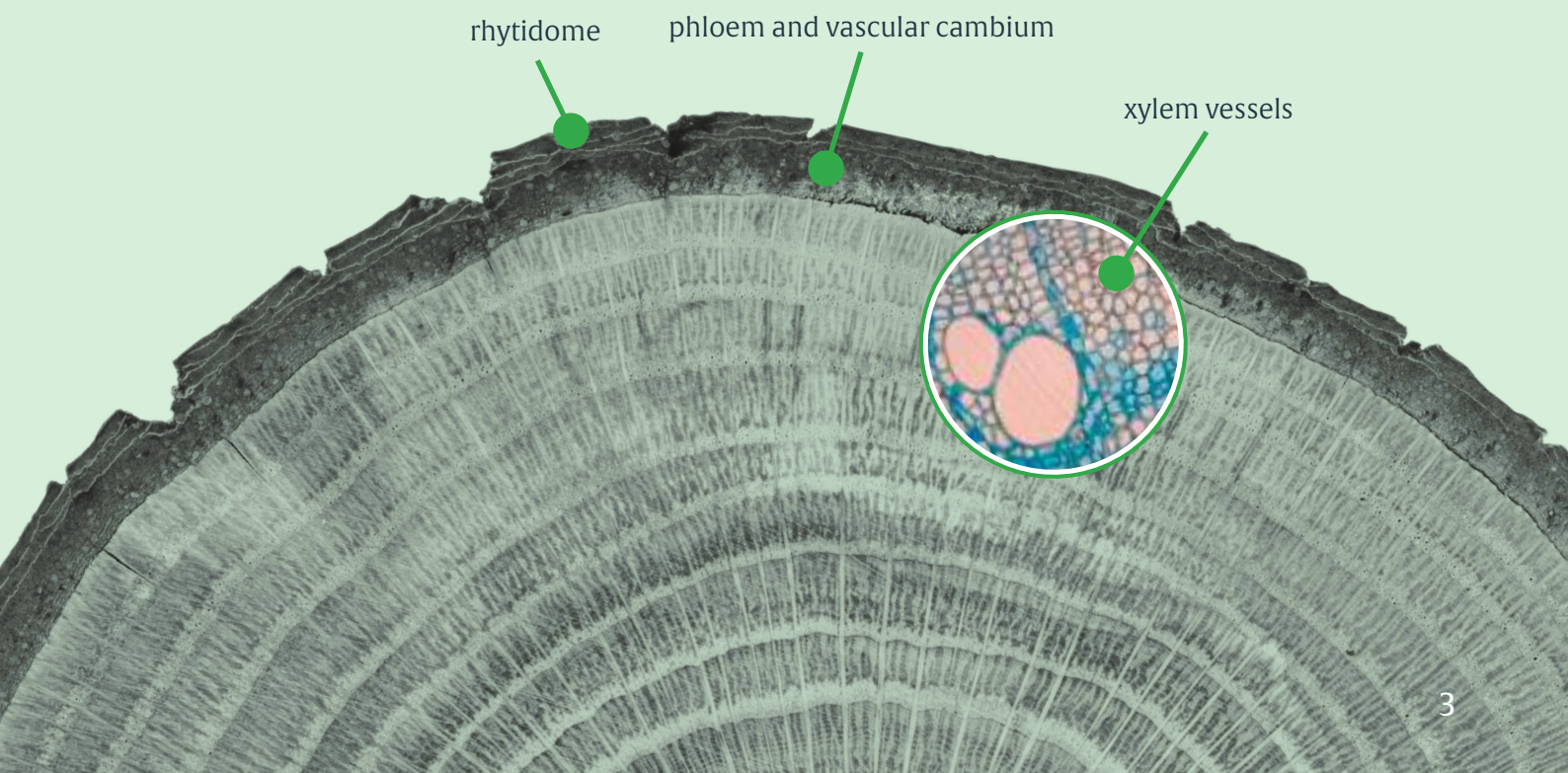


The special lenticular section needle, manually inserted into the trunk, spontaneously opens the fibres exerting a minimal friction which does not cause overheating.



DELICATE TISSUE SPACING AVOIDING DAMAGE TO THE TREE

Once the xylematic vessels are reached, **beneficial solutions** can be introduced. The surrounding tissues heal naturally in a few weeks, with the help of Propolis.



rhytidome

phloem and vascular cambium

xylem vessels

From endotherapy to endoinfusion with Bitecare®

An innovative approach that avoids drilling holes and forcefully introducing a liquid

A comparison between traditional endotherapeutic pressure systems and the new Bitecare® endoinfusion method

STEP 1 REACHING THE VESSELS

Old endotherapeutic methods

It is necessary to drill holes all around the entire circumference (drilling one hole every 20 cm).



- The drill causes damage, tearing vital tissue.
- Holes can often lead to infections and disease.
- Overheating caused by drilling causes damage to the tissue.

Bitecare®

Through the Bite® endoinfusion tool, a special needle gets inserted between the fibers.



- No tissue damage.
- Total prevention from infections.
- No overheating and therefore no permanent injury.

STEP 2 INTRODUCING THE LIQUID

Old endotherapeutic methods

The injection of the product inside the hole is carried out by applying substantial pressure.



- The air which enters the hole is pushed in causing embolisms.
- By applying the pressure, part of the liquid can come out of the hole.
- The tissues are often irreversibly damaged.

Bitecare®

Spontaneous infusion by atmospheric pressure or low pressure.



- No modification of the plant's physiology.
- No alteration of the characteristics of the product infused or injected and no waste of the product.
- No damage to the tissues.

STEP 3 CLOSING OF THE PORT

Old endotherapeutic methods

The port must be closed with dressing (often phytotoxic) or a plug.



- Complete healing is impossible due to the depth of the lesions.
- Permanent loss of strength and vitality.
- Completely necrotized portions of the stem.

Bitecare®

The port can be treated with natural products (e.g. Propolis).



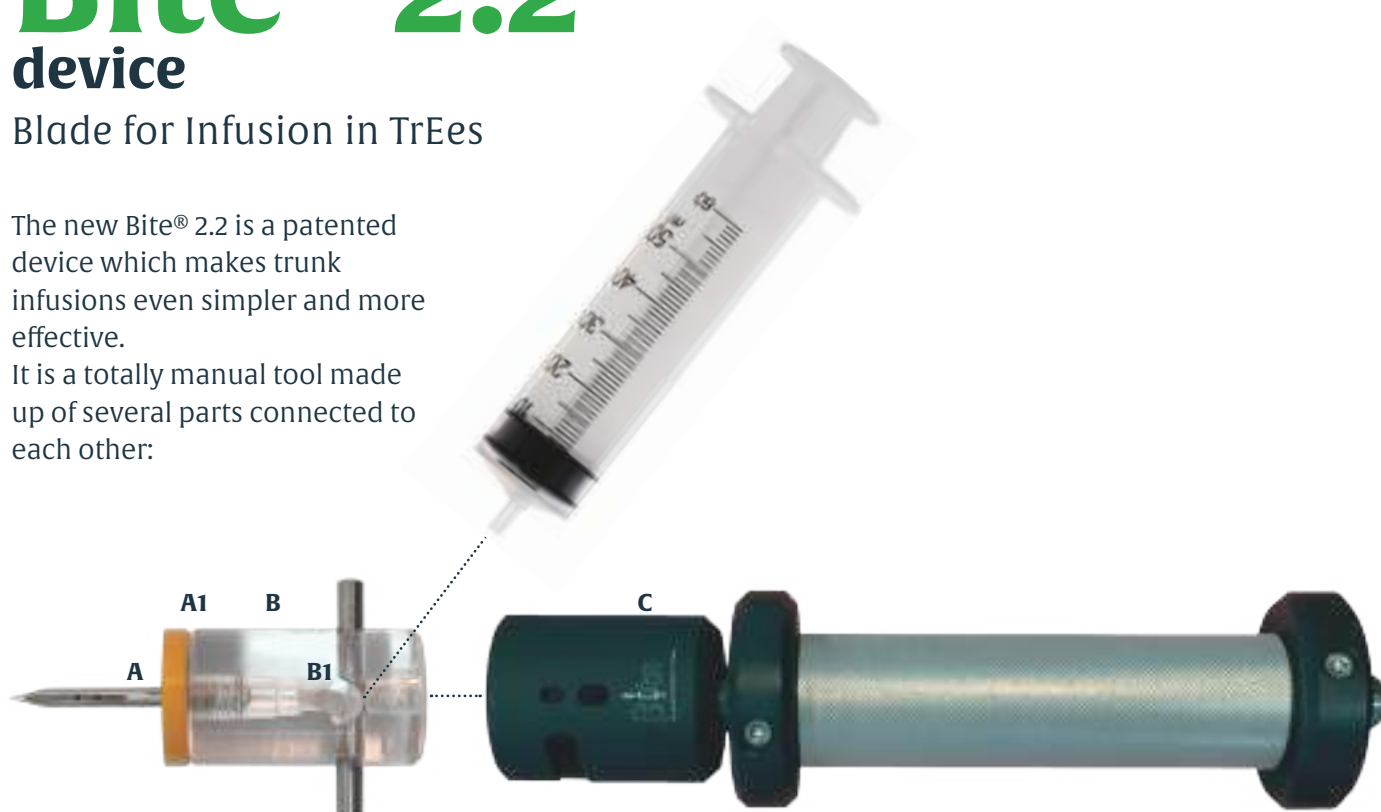
- Complete closure in a few weeks.
- No loss of strength and vitality.
- No aesthetic damage.

The Bite® 2.2 device

Blade for Infusion in TrEes

The new Bite® 2.2 is a patented device which makes trunk infusions even simpler and more effective.

It is a totally manual tool made up of several parts connected to each other:



- Special interchangeable needles (**A**), hollow and perforated, for tissue spacing.
- Gaskets (**A1**) that allow the needle-holder to adhere perfectly to the bark and prevent sap or liquid's leakages.
- A polycarbonate needle-holder (**B**) with a seat for housing the pharmaceutical syringe (**B1**) containing the beneficial solution.
- A sliding hammer (**C**) allows the axial insertion and extraction of the needle along the circumference of the trunk.

A



35 mm
needle



53 mm
needle



65 mm
needle

A1



Soft
gasket
(hardwood)



SuperSoft
gasket
(softwood)



Watch the video



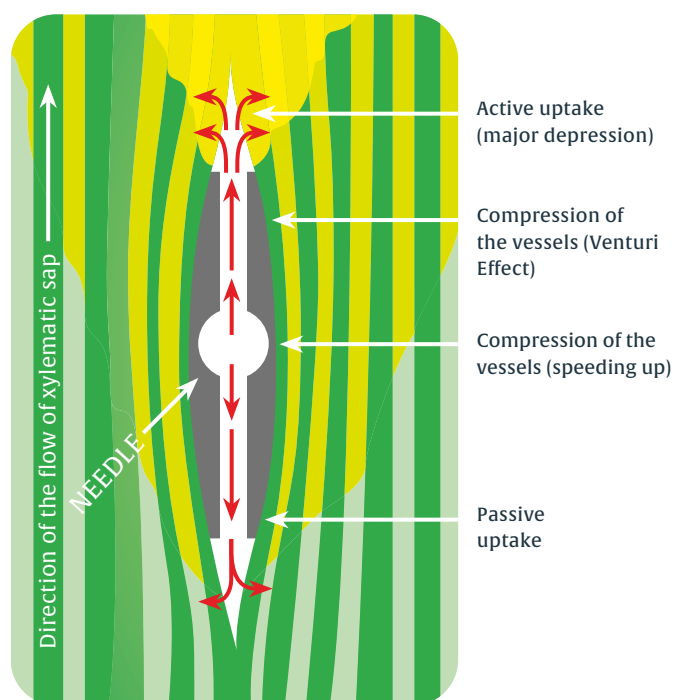
ENDOINFUSION WITH BITE® 2.2

The special needle is inserted between the vessels, increasing the speed of the sap flow towards the crown by "Venturi Effect".

Thanks to this phenomenon an external liquid, with **beneficial** properties, is absorbed in a spontaneous and natural way.

Unlike traditional injection, which requires external force in order to introduce a fluid, **endoinfusion is based on the intensity of the leaf transpiration as driving force for the movement**. The uptake speed of an external liquid is closely correlated with the intensity of the xylematic flow directed towards the canopy, and the xylematic flow is in turn directly proportional to the volume of water dispersed by the leaves.

As an example, under normal conditions a common plane tree (*Platanus acerifolia*) can spontaneously absorb 10 ml of external liquids in less than a minute.



The choice of the needle

Depending on the tree species, a needle of suitable length must be selected. As a general rule, it is sufficient to penetrate the vascular tissues by about 2 cm (Needle 35 mm or 53 mm, depending on the thickness of the bark and the porosity of the wood), while on pines it is advisable to use a longer needle (Needle 65 mm) which allows to overtake the resin canals.



The choice of the kit

The system is proposed in two types of kits consisting of:

TYPE OF KIT	KIT CODE	NEW SLIDING HAMMER	NEW NEEDLE-HOLDER	35 mm NEEDLE	53 mm NEEDLE	65 mm NEEDLE	SOFT GASKET Ø 30 mm	SUPERSOFT GASKET Ø 30 mm
A	1088000600	1 pz	1 pz	1 pz	1 pz	1 pz	1 pz	1 pz
B	1088000605	1 pz	5 pz	5 pz	5 pz	5 pz	5 pz	5 pz

Based on specific needs, it is possible to expand the kit with specific spare parts:

SPARE PARTS	CODE	NUMBER OF PIECES
35 mm NEEDLE	1088000090	5 pz
53 mm NEEDLE	1088000091	5 pz
65 mm NEEDLE	1088000092	5 pz
NEEDLE-HOLDER	1088000089	5 pz
SOFT GASKET	1088000096	5 pz
SUPERSOFT GASKET	1088000098	5 pz



Helpful hints

Bite® 2.2 mounts the brand-new polycarbonate needle-holder, which can be quickly inserted into the trunk even through a handy rubber hammer as well as with the striking mass of the sliding hammer. With the new Bite® 2.2, the self-tapping needle-holder allows to always keep the needle in an optimal position, even taking advantage of the useful screw holes in the sliding hammer.

For starters

To get familiar with the method, it is advisable to run some preliminary tests using only water in an un-pruned tree with smooth bark (e.g. plane tree, birch, etc.) and fully developed canopy. Perform treatments preferably between bud break and late summer, in sunny breezy days, according to general rules in tree endotherapy applied to the trees.

Hole for screwing the 35 mm Needle



Hole for screwing the 53 and 65 mm Needles

Methods of use



1. MEASURE OF THE CIRCUMFERENCE



4. SCREWING THE NEEDLE



7. INSERTING THE NEEDLE INTO THE WOOD



8. INSERTING THE SYRINGE AND EXTRACTING THE AIR

1. Using a measuring tape, measure the circumference of the trunk 100-150 cm from the base; usually a needle is inserted every 30 cm and 1 mL of beneficial solution per centimetre of circumference is introduced.
2. Carefully observe the plant and follow the root flares to identify ideal ports for the needles. Select the best sites for needle ports, preferring lightly convex, smooth locations. Avoid any part with anomalies able to interfere with sap flow, above or below the insertion site (e.g., knots, wood decay, pruning cuts). If necessary, superficially smooth the bark with a knife to allow the external gasket to make a perfect seal with the bark. In the case of very thick bark, it is possible to use a Forstner drill bit (4 cm Ø), proceeding with caution in order not to risk damaging the functional tissues of the wood. If the site is too rough or too curved, move a few cm to one side.
3. It is advisable to previously spray a small amount of disinfectant (e.g., Propolis) at the point of injection.
4. Choose a needle with a length compatible with both bark thickness and tree diameter/circumference: in broadleaves, at least 2 cm must enter the functional woody tissues; in conifers and palms, due to the specific anatomy, longer needles are preferable. Screw the needle to the needle-holder using the holes in the sliding hammer.
5. Choose the right gasket: the yellow one is particularly suitable for the use of the 35 mm Needle or in the case of rough bark; the red one, with higher density, is characterized by even greater resistance over time. Place the gasket on the needle-holder by passing the needle through the centre hole, keeping the concave part facing outward.
6. Fill a disposable pharmaceutical syringe of suitable volume with the solution required for drug delivery, keeping the plunger in for at least 2-3 cm deep. As an alternative to the syringe, use any container for tree injections (e.g., drip bags, pre-filled capsules, etc.) fitting with the conical hole in the needle holder.
7. **Keeping the side with the word "IN" upwards**, insert the needle-holder into the sliding hammer. Hold the body firmly with a hand, directing the needle to the tree's centre. Keeping the position firmly, with the other hand strike the sliding hammer on the body until the external gasket is completely squeezed against the bark. The needle's edge must be directed parallel to the fibers. Carefully detach the hammer. **As an alternative to the sliding hammer, it is possible to use a common rubber hammer.**
8. Insert the syringe in the conical opening and gently draw out the plunger. **The resistance of the plunger indicates the perfect insertion of the needle.** Withdrawing the plunger will also remove any air present within the needle.
9. Wait for total uptake by the tree.
10. In the meantime it is possible to place a second needle-holder to perform the endoinfusion in another position on the same or different tree.

11. When the speed of the sap is too low and the endoinfusion is slow (e.g., less than 1 mL/minute, or in cloudy weather, or operating on conifers and palms), to switch from infusion to injection, simply insert the plunger back into the syringe and proceed by applying pressure with the fingertip.
12. Once the syringe is completely empty, remove it, then wait a few more seconds for the needle-holder to drain, then **reinsert the sliding hammer on the needle-holder holding up the side with the word "OUT", press lightly and make a clockwise rotation to lock it**, then extract the needle by striking the sliding hammer in the opposite direction with firm strokes.
13. It is recommended to disinfect the needle-holder, the gasket and the needle before carrying out new endoinfusions, especially if the plant is affected by transmittable diseases. To do this, remove any wood residues from the tools, then proceed with disinfection (e.g., with quaternary ammonium salts) and rinse them thoroughly with water.



12. EASY REMOVAL

IMPORTANT NOTICE: use only solutions specifically authorized for tree injection. The formulations, used individually, must be diluted in water or Sapjet® HD, according to the information provided by the producer. Always wear gloves and protective glasses, and any other safety device according to regulations in force.

WARNING! Avoid injections on trees with water stress: uptake may be slow and the solution phytotoxic. If not postponable, it is advisable to irrigate the root area a few days before. Avoid carrying out injections when it is too hot: normally non-phytotoxic solutions can become so.

FAQ

IF THE NEEDLE IS NO LONGER ON THE AXIS

After several applications it is possible that the needle housed in the needle-holder is rotated and not in the correct position. In this case, insert the needle into the holes in the sliding hammer and make a small rotation to further screw the self-tapping needle into the needle holder.

IF THE INFUSION IS QUICK (E.G., 10 mL/minute)

It is possible to increase the volume injected for each insertion (e.g., by refilling the syringe) and decrease the total number of insertions. Anyway, to ensure an optimal distribution of the liquid to the canopy, it is recommended to make an insertion at least every 40 cm of the circumference.

IF YOU NOTICE A LIQUID LEAK AT THE GASKET

Make sure that the gasket is tightly compressed on the bark and does not leave any gaps. To further increase the adhesion of the needle-holder, a few strikes with a rubber hammer may be helpful. Check that the surface of the bark at the point of insertion is sufficiently smooth, and, if necessary, smooth the surface of the bark with a cutter so that the outer seal can adhere perfectly to the bark. In some cases, it may be effective to apply a small amount of linseed oil glazing putty to the base of the needle.

IF THERE IS SLOW OR NO UPTAKE

Check that there are no blockages inside the needle-holder and the needle.

You can try to speed up the process by applying thumb pressure to the plunger, switching from infusion to injection. Alternatively, postpone the treatment until suitable physiological and climatic conditions will be more favorable.

IF THE PROTECTION OF THE WOUND IS COMPULSORY

Use inert wax or paraffin for closure. Note: pruning or grafting gums containing pesticides can be phytotoxic for the vascular cambium, slowing down the wound closure.

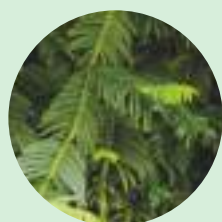
Recommendations for optimal endoinfusion with Bite® 2.2

The appropriate period for endoinfusions



BROADLEAVES

The ideal period is between the restart of the vegetative phase (March/April) and the beginning of summer.



CONIFERS

We recommend performing the operations with Bite® 2.2 in autumn; for what concerns pines, it is best to perform the interventions when the resin is less fluid that is in winter or opting for the use of the R.I.T.E. device.

The best points where to insert the needles

The preferred port locations are on flat or convex surfaces near the roots and along the first meter of height (Fig. 1).

The best time of the day to perform endoinfusion

Prefer the peak sunlight hours on sunny days, possibly with damp soil and in the presence of a slight breeze. During the night the xylem flow slows down considerably due to the reduced leaf transpiration, consequently uptake is slower. Conifers have a limited intrinsic speed of the sap, so infusions will take longer (Fig. 2).

In this case it is advisable to exert a slight pressure on the plunger of the syringe.

Comparison between the uptake time required by traditional endotherapic pressure methods and Bitecare® method

When a therapeutic solution containing Abamectin 0.1% (abam.) is used, the difference between the traditional pressure method and the spontaneous absorption Bitecare® method is minimal (Fig. 3).

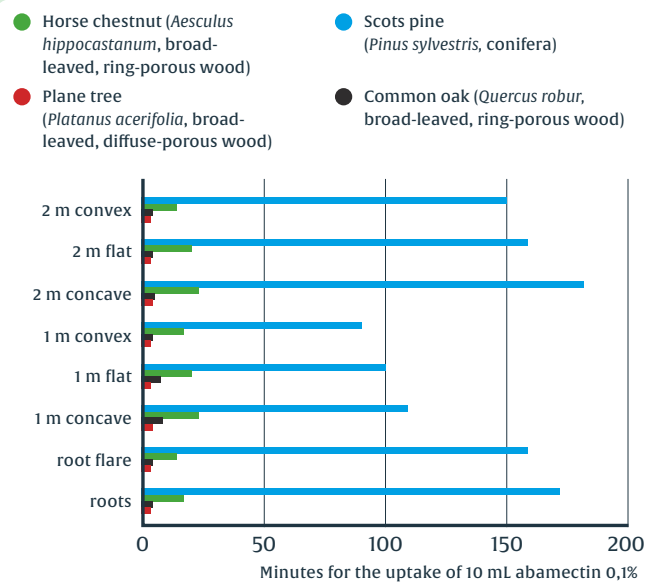


Fig. 1: Experimental data on uptake times according to port location and wood porosity. Comparative tests conducted by the University of Padova.

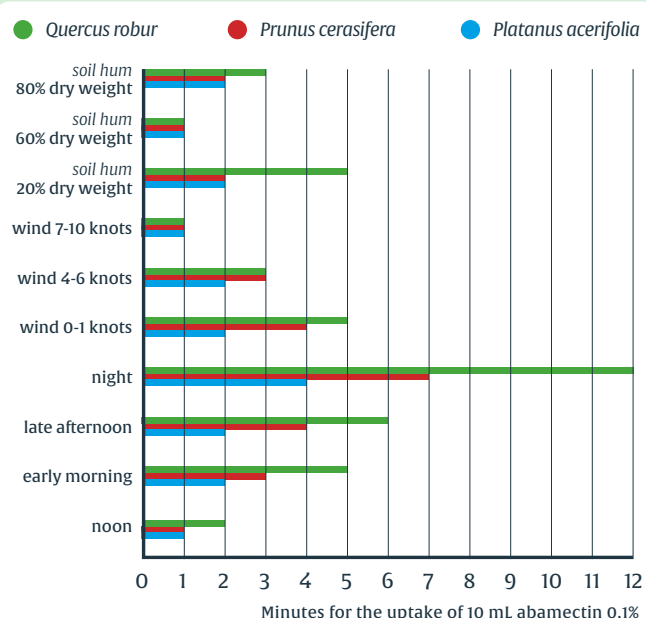


Fig. 2: Experimental data on the influence of environmental variables on the uptake rate. Comparative test conducted by the University of Padova.

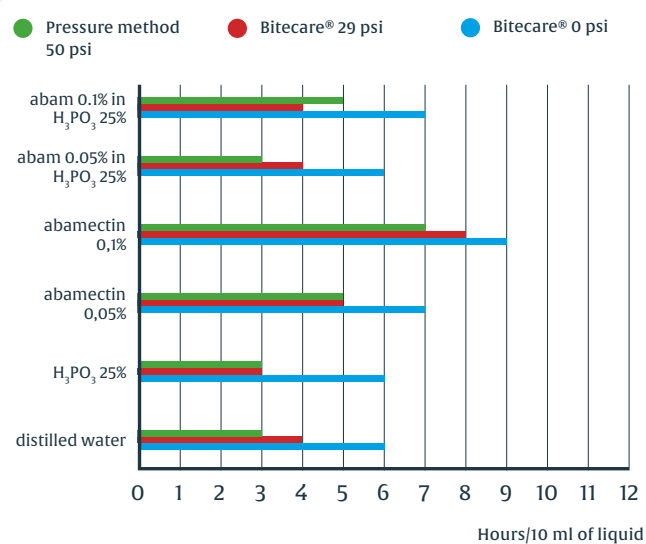
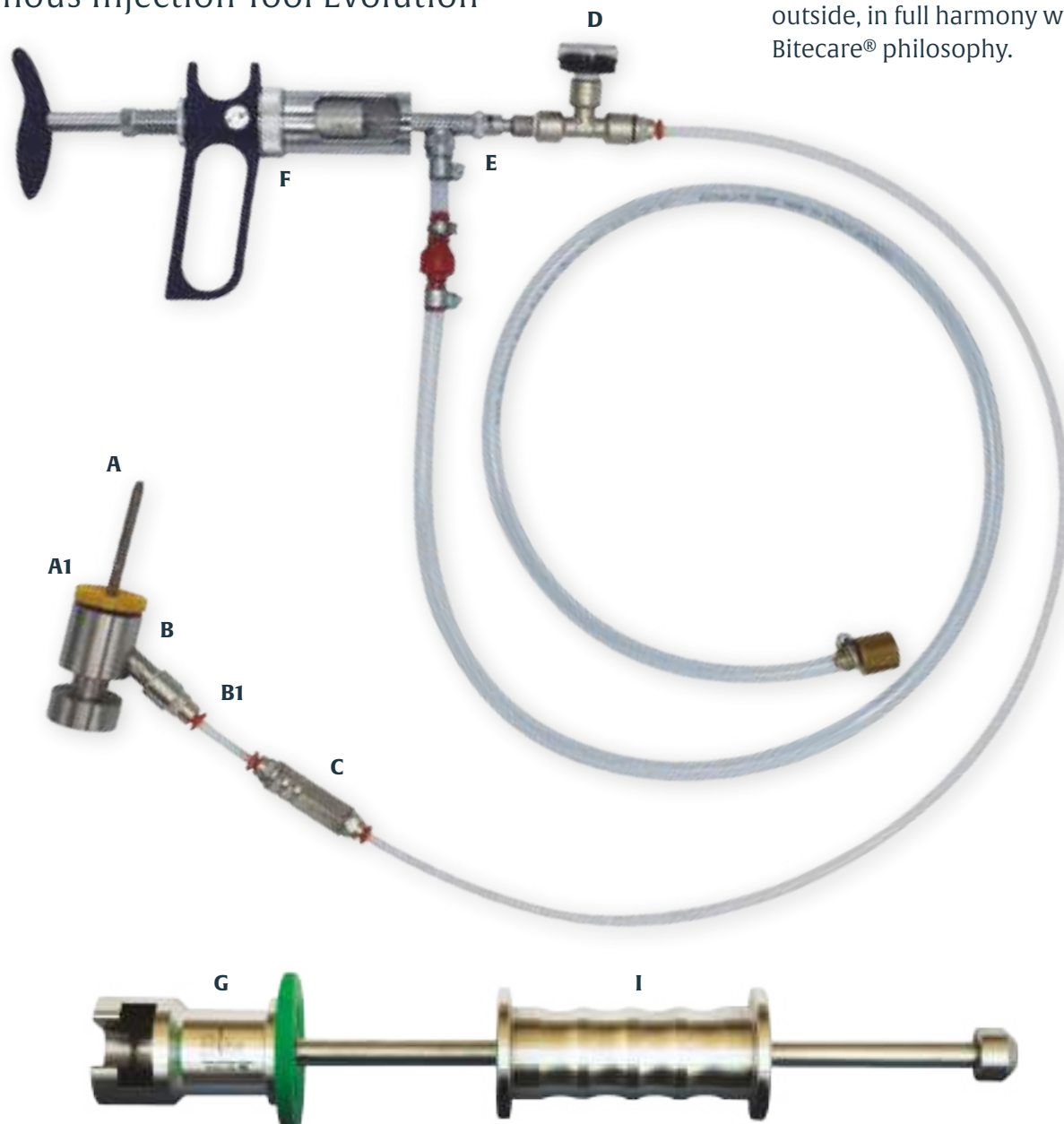


Fig. 3: Experimental data concerning uptake time to leaves of different formulations. Comparative test conducted by the University of Padova.

The **R.I.T.E.** device

Resinous Injection Tool Evolution

R.I.T.E. is the new frontier of endoinfusion on resinous species. With the new R.I.T.E. device it is possible to inject a beneficial solution in resinous species by exerting a slight but significant pressure from the outside, in full harmony with Bitecare® philosophy.



It is a tool made up of several interconnected parts:

- A.** Special 65 mm needle
- A1.** Supersoft gasket
- B.** Needle-holder in stainless steel with quick coupling unit (**B1**)
- C.** Non-return valve connected to a pressure gauge (**D**), in turn connected to a special Luer-Lock adapter (**E**)
- F.** Self-refilling syringe and two-way valve system
- G.** Hammer screwed to a handpiece (**I**) that allows the needle to be inserted into the wood and extracted



Watch the video

In trunk injection the resin represents a significant obstacle as it risks dirtying the instrumentation causing a general slowdown in the uptake of the product.

R.I.T.E. represents the solution to the problem of the resin thanks to the combination of the advantages of Bitecare® method with a specific instrumentation that allows, by exerting a slight but significant pressure from the outside, the entry of the solution into the xylem.

The ideal pressure for injection purposes should ensure maximum movement of the liquid inside the tree without physically damaging it. Pressures that are too high (over 5 bar) could actually increase the risk of leaks and, above all, of damage to the vascular cambium as well as of generation of bark lesions (detachment and splitting of the bark).



The wood of resinous species (es. *Pinus pinea*, *Pinus pinaster*, *Pinus nigra*, etc.) is characterized by the presence of particular channels within which a viscous liquid with an amber colour flows: the resin. When a tree is injured, the resin flows out of the resin canals invading the injured area. It is toxic to many parasites and can act as a protection against herbivores.



Despite R.I.T.E. has been developed for treatments of resinous trees, in particular pines, **the device is also well suited for stem injections on palms**. Furthermore, by using a needle of the appropriate length and decreasing the operating pressure (max 1.5-2 bar), it will be possible to carry out controlled pressure treatments with R.I.T.E. on both **cedars and broadleaves**, shortening the treatment times in comparison with endoinfusions. To facilitate the uptake of the product by the tree, **it is recommended to use it combined with Sapjet® HD while**, at the end of the operations, it is essential to clean the instrument with CleanTech.



R.I.T.E. allows to continuously monitor the pressure exerted thanks to the built-in pressure gauge, in order to make the injection ensuring the maximum movement of the liquid inside the tree without affecting the physiology of the plant.



Useful hints

R.I.T.E. allows to widen the time window useful for carrying out endotherapeutic operations on the pines. In any case, it is suggested to avoid operating when temperatures are high. In fact, in the summer period the resin pressure in the resin channels is very high and it would be necessary to carry out a considerable (and excessive) pressure to carry out the treatment. On the contrary, when operating on the pines in the autumn and winter period, maximum pressures of 3-4 bar are sufficient to obtain the uptake of the product. The basic kit R.I.T.E. comes with the 65 mm Needle, specific for resinous plants (in particular pines), but also suitable for injections on palm trees. In the case of application on cedars or broadleaves with diffuse porosity, it is recommended to replace it with a more suitable needle of intermediate length (53 mm Needle).

Methods of use

1. When using the product, wear protective gloves and goggles, as well as any other protective device provided.
2. Make sure to expel the air from the R.I.T.E. by flowing the liquid inside.
3. Disinfect the injection site with Propolis Fitoguard to prevent the possible entry of potential pathogens.
4. Fit the needle-holder in the sliding hammer, then insert the needle perpendicularly into the trunk or on the trunk base after having previously smoothed the bark where necessary. In the case of very thick bark with overlapping plates, a Forstner drill bit (4 cm Ø) can be used. At the end of the insertion, detach the needle-holder from the sliding hammer.
ATTENTION: make sure that the gasket is compressed as much as possible in order to avoid leakage or loss of product.
5. It is advisable to remove the air present in the needle-holder by inserting a syringe preloaded with the solution into the cannula and partially extracting the plunger.
6. Remove the syringe and connect the R.I.T.E. to the needle-holder.
ATTENTION: connect the R.I.T.E. as soon as possible to the needle-holder in order to avoid the leakage of resin that would dirty the instrumentation.
7. Start the injection of the beneficial solution by exerting a pressure on the plunger of the syringe not exceeding 4 bar (0.4 MPa)*. The amount of liquid to be injected varies according to the circumference of the tree and the concentration of the solution. Refer to the graduated scale on the syringe barrel to quantify the injected liquid.
8. At the end of the treatment, disconnect the R.I.T.E. from the needle-holder then extract the needle from the wood. Apply further Propolis Fitoguard on the injection site.
9. At the end of the intervention, immediately use CleanTech to clean the R.I.T.E., device, taking care to let it flow into the system to avoid any annoying resin residues remaining inside. After at least 30 minutes, rinse with water.



4. INSERTING THE NEEDLE INTO THE WOOD



5. AIR REMOVAL



6. CANNULA CONNECTION



7. CONTROLLED PRESSURE INJECTION

The kit is proposed ready for use in a handy tool case:

KIT CODE
1088000519



Spare parts for components are available as well the needles of shorter length (53 mm Needle) for the application on cedars and broadleaves.

SPARE PARTS	CODE	NUMBER OF PIECES
53 mm NEEDLE	1077780	1 pc
	1077750	5 pcs
65 mm NEEDLE	1077790	1 pc
	1077760	5 pcs
SYRINGE GLASS CYLINDER	1088000601	1 pc
SYRINGE BARREL	1088000602	1 pc
SYRINGE VALVE GROUP	1088000603	1 pc
NEEDLE-HOLDER	1077730	1 pc
SOFT GASKET	1077800	5 pcs
SUPERSOFT GASKET	1077810	5 pcs

FAQ

ARE THERE ANY SPARE PARTS FOR R.I.T.E.?

Needle-holders, needles and o-rings are available as spare parts. As for the syringe, it is possible to replace the glass cylinder, the barrel, and the valve group, by requesting the dedicated replacement kits.

I HAVE NOTICED A LEAK OF LIQUID AT THE GASKET LEVEL ON THE BARK, WHAT CAN I DO?

Make sure that the gasket is well compressed on the bark and does not leave breaches. To further increase the contact of the needle-holder with the bark, a few blows with a strictly rubber hammer may be useful. In some cases, it may be effective to apply a small amount of linseed oil glazing putty to the base of the needle. Should the losses continue, check the integrity of the o-ring inside the needle-holder and proceed with its replacement.

I HAVE NOTICED A LOSS OF LIQUID FROM THE SYRINGE, WHAT CAN I DO?

It is possible that, due to the pressure imparted, a small part of liquid overcomes the barrel inside the syringe cylinder. Small quantities do not affect the treatment and it is possible to drain this liquid by

gently unscrewing the syringe cap. If necessary, try to decrease the pressure exerted. If the amount of liquid is excessive, it means that the glass or the piston are damaged. Proceed with replacement.

ARE THERE ANY MAINTENANCE TO BE CARRIED OUT?

The use of CleanTech allows you to keep the device clean and functioning. It is advisable to periodically check the correct flow of the liquid in the instrument. If the liquid is difficult to come out, the non-return valve at the syringe outlet could be blocked or loosened: it is possible to lubricate it with a drop of oil, then carrying out loading-unloading cycles of the syringe to facilitate its distribution.

IS IT POSSIBLE TO CHANGE THE DOSE AUTOMATICALLY REFILLED BY THE SYRINGE?

By acting on the piston bar once the knurled washer has been loosened, it is possible to adjust the volume of liquid processed by the syringe.

HOW CAN I STORE THE DEVICE?

In case of prolonged inactivity, it is recommended to carry out the usual cleaning operations with CleanTech,

then use water to remove the last residues and allow to dry as much as possible. If you are familiar with the tool, it is advisable to disassemble it to facilitate drying.

WHAT CAN I DO IF THE NEEDLE IS NO LONGER IN AXIS?

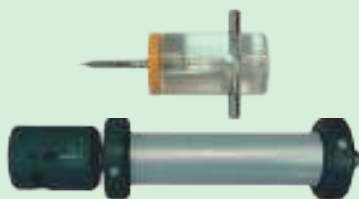
After various applications it is possible that the needle housed in the needle-holder is rotated and no longer appears in the correct position. In this case remove the needle and replace the o-ring in the needle housing of the needle-holder.

CAN I ADJUST THE REMOVAL OF THE NEEDLE-HOLDER FROM THE SLIDING HAMMER?

If the extraction of the needle-holder from the sliding hammer is too soft or too hard, carefully unscrew and extract the threaded bar of the sliding hammer from the needle-holder housing. Using a key Allen screw (5 mm) unscrew and extract the threaded insert present in the threaded rod housing. Using a flat head screwdriver rotate the second threaded insert remaining in the housing to adapt the insertion and extraction of the needle-holder to one's needs.

**On cedars and on broadleaves it is advisable not to exceed the maximum pressure of 1.5-2 bar.*

Everything you need to take care of the trees



Bite® 2.2

Patented tool for
endoinfusion



R.I.T.E.

Device for controlled
pressure injections



Sapjet® HD

Patented carrier for
therapeutic solutions



Propolis

Fortifying
Biological enhancer of the
natural defences of plants



Processorex New

Trap for catching larvae



Enerbite®

Quick assimilation
nutrient solution



Micromegas®

Concentrated insecticide
acaricide



Vargas®

Concentrated insecticide
acaricide



CleanTech

Degreasing and
disaggregating solvent



Sapjet® HD

THE PATENTED CARRIER THAT SPEAKS THE SAME LANGUAGE OF THE SAP

Improve and speed up the uptake of products by plants.

Sapjet® HD transforms water into a solution very similar to sap.

The sap of the plants is an aqueous solution that carries minerals within the plant. Common water, although compatible with the practice of endotherapy, does not possess the same characteristics and peculiarities of the sap. The perfect balance with the plant's physiology is achieved with Sapjet® HD, the special patented carrier for the preparation of beneficial solutions.

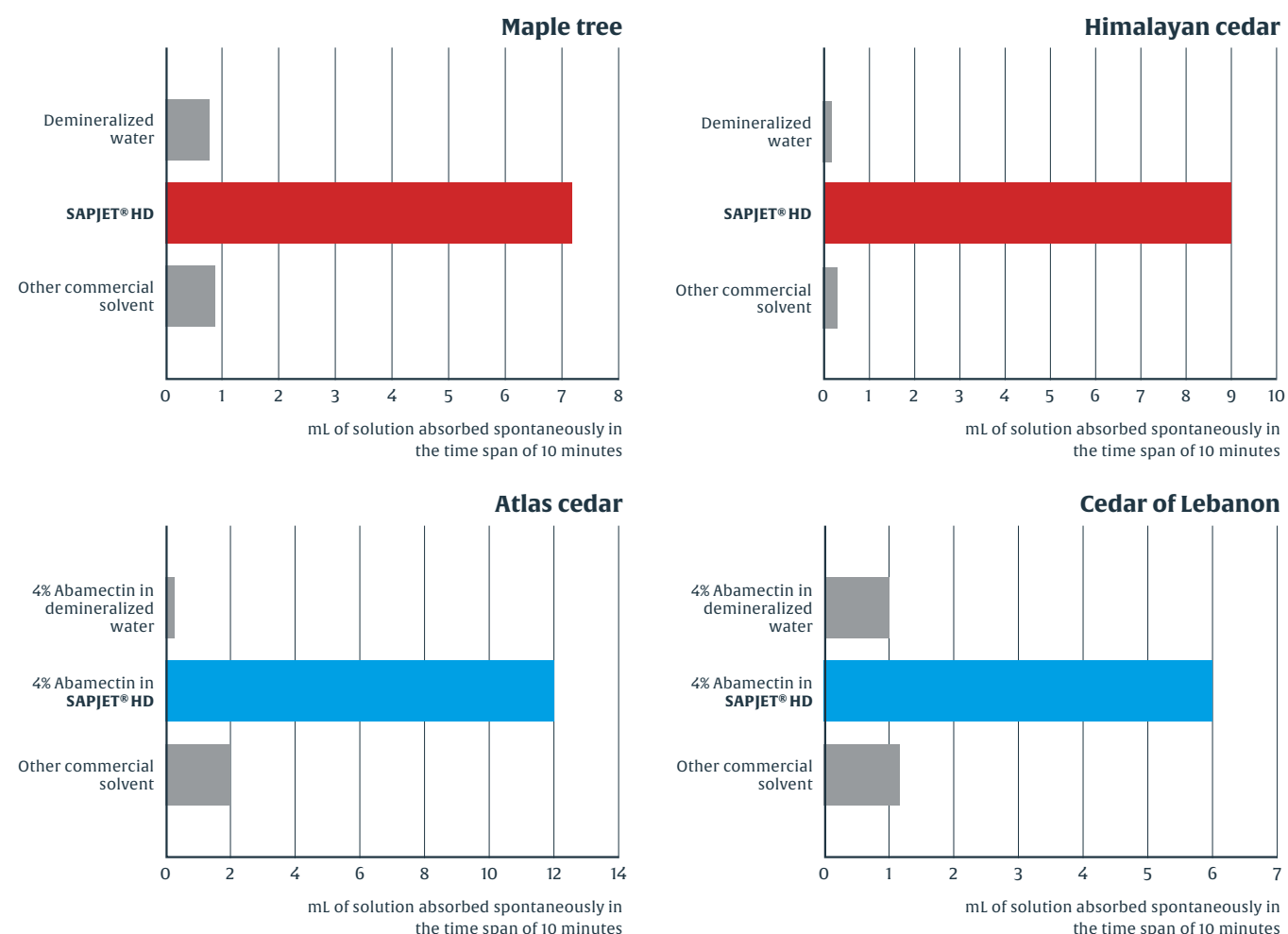
Sapjet® HD is a carrier which is fully compatible with the sap, which facilitates the uptake of external fluids greatly increasing the uptake rate. It comes in a new formulation. It has been freeze-dried to be more practical in the phase of preparation of the solution.

DOSAGE

One sachet of Sapjet® HD per litre of solution to be infused into the tree.

Quick and spontaneous infusion of active ingredients

The graphs clearly demonstrate that Sapjet® HD increases the uptake rate of external liquids.



	CODE	Quantity
	107000006	10 sachets × 58.3 g

Propolis

FORTIFYING BIOLOGICAL ENHANCER OF THE NATURAL DEFENCES OF PLANTS



An extract of propolis in aqueous solution containing multiple beneficial substances processed by bees.

Applied to the area where the needle will be inserted, it disinfects the surface.


After the endoinfusion treatment, treat the area again to prevent the development and entry of microorganisms.


One of the causes of the spread of diseases among tree species is linked to the use of tools for pruning or for endotherapy. The colonization of plant tissues by microorganisms (in particular fungi) can be favoured by the lesions present on the surface of the tree. Although the Bitecare® method preserves the integrity of plant tissues, it is common practice to apply molecules with preventive action to the areas where the needles are inserted. Many of these preventive molecules can be natural and the propolis extract contains many of them.


In line with the Bitecare® philosophy, the application of propolis extract on the bark before inserting the needle prevents any possible infection.

Once the endoinfusion process is completed, a further application of propolis extract contributes to form a waxy defensive film on the surface that prevents the development of some fungi thanks to its high content of flavonoids and vegetable pigments. The propolis extract also favours the closure of the port, ensuring a long-lasting protection from fungi and bacteria, which are actively contrasted by the flavonoids.

Finally, among the countless beneficial properties, propolis extract stimulates rooting, flowering, promotes fruit set, improves production during growth and gives colour, flavour, and shelf life to fruits.

	CODE	FORMAT	Qty per carton
	1040000002	150 mL	12 pcs per crt

	CODE	FORMAT	Qty per carton
	1040000003	800 mL	6 pcs per crt

	CODE	FORMAT	Qty per carton
	1040000001	500 mL	12 pcs per crt



Processorex New

TRAP FOR THE CAPTURE OF THE CATERPILLAR OF THE PINE PROCESSIONARY MOTH

Trap for the capture of pine processionary moth caterpillars (*Thaumetopoea pityocampa*) to be placed on the trunk of *Pinus nigra*, *P. sylvestris*, *P. halepensis*, *P. pinea*, *P. pinaster*, *P. insignis*, *P. strobus*, *Larix decidua* e *Cedrus* spp.

During the descent from the top of the tree, the larvae are intercepted and collected inside a container and can be easily eliminated.



- 1 Foam band
- 1 Wedge
- 1 Translucent sheet
- 1 Belt
- 1 Deposit (container)
- 2 Small wedges
- 1 Funnel
- 2 Double-sided adhesive

Place the trap on the trunk at breast height already from February. Leave the trap positioned at least 3 weeks after the last descents so that the pupae are formed and that there is no more danger of infestation. Inside the plastic collector, insert some soil to simulate the ground.


Processorex New

for trunks up to 130 cm in circumference

	CODE	Qty per carton
	1086000040	1 pc per crt

Processorex New xl

for trunks from 130 cm to 280 cm in circumference.

	CODE	Qty per carton
	1086000044	1 pc per crt




Watch the video

Extension for the collar

CODE	Qty per carton
1086000042	1 pc per crt



 **Enerbite® nourishes and stimulates the plant's defences.**

Enerbite®

CE FERTILIZER FERTILIZER SOLUTION PK 11-7,3

Enerbite® stimulates the formation of organic complexes useful for defence of the plant from external agents. The management of the *Chestnut Ink Disease* is an example. The disease is caused by the Oomycetes *Phytophthora cambivora* and *Phytophthora cinnamomi* and, if not addressed, it causes total decay of the affected species. Potassium phosphite contained in Enerbite® contributes to improving the health of the plant which, much stronger, counteracts more effectively the attacks by *Phytophthora* spp.

COMPOSITION

Phosphorous pentoxide (P_2O_5), water-soluble 11%
Potassium oxide (K_2O), water-soluble 7,3%
With the content of each package (250 g), ready-to-use, it is possible to treat 4 trees (65 cm crf, 20 cm diam.).

	CODE	FORMAT	Qty per carton
	1041000057	250 g	15 pcs per crt

How can we feed tall trees?

Bitecare® endoinfusion allows to introduce nutrients into the xylem, that are assimilated fast and efficiently without waste of nutrients at ground level. Enerbite® is a binary liquid fertilizer containing potassium phosphite in a special formulation designed specifically for the Bitecare® method.

New **life** to
the plants





Micromegas®

LIQUID EMULSIFIABLE CONCENTRATE

Micromegas® is an abamectin-based insecticide-acaricide specific for endotherapeutic treatments with the Bitecare®.


The formulation also allows treatments of numerous pests of citrus fruits, vines, vegetables, and other plant species.

Micromegas® is suitable for infusions both on broadleaves and on conifers, in nurseries, road trees and parks.

COMPOSITION


Pure abamectin 1.9 g (18.37 g/L)

Dilute the product at a rate of 10-40 mL of Micromegas® per litre of water, then add Sapjet® HD and infuse the solution into the trunk through the Bitecare® system at the restart of the vegetative phase or in the appropriate phenological phase.

 **Designed for the professionals of garden maintenance and pest control**

Gardening services experts, agronomists, arborists, garden designers, landscapers, architects, land surveyors, agrotechnicians, forest studies, etc.

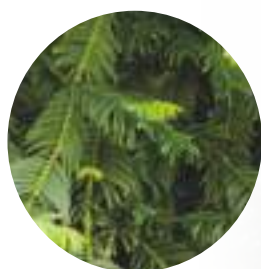
Pest Control and IPM (Integrated Pest Management) professionals.

	CODE	FORMAT	Qty per carton
	1030000065	1 L	10 pcs per crt

Plant Protection Product Reg. N. 15281 of 27/04/2012



BROADLEAVES




CONIFERS



Vargas®

EMULSIFIABLE CONCENTRATE

Abamectin-based insecticide-acaricide, Vargas® is used in endotherapeutic treatments with the Bitecare® system on broadleaves and conifers for road trees and parks. It is active against all the mobile stages of insects and mites, and it can also be distributed for the defence of orange, mandarin, clementine, lemon, pear, apple, vine, strawberry, horticultural, ornamental and flower crops, shrub and tree nurseries.

 **The plant protection product for the management of the pine tortoise scale (*Toumeyella parvicornis*)**

COMPOSITION

Pure abamectin 1,9 g (18,37 g/L)

Dilute the product at a rate of 10-40 mL of Vargas® per litre of water, then add Sapjet® HD and infuse the solution into the trunk through the Bitecare® system at the restart of the vegetative phase or in the appropriate phenological phase.

	CODE	FORMAT	Qty per carton
	1030000063	1 L	12 pcs per crt

Plant Protection Product Reg. N. 16867 of 13/07/2017



 **Free sale**

CleanTech

DEGREASING AND DISAGGREGATING SOLVENT

Additive designed for the ordinary cleaning of Bite® and R.I.T.E. It exerts a powerful solvent, degreasing and disaggregating activity to remove any impurities from the application systems.

COMPOSITION

100% diethylene glycol monobutyl ether.

Use pure or diluted 10% in water. With R.I.T.E. the use of the pure product is recommended. Leave on for at least 10 minutes (ideally a whole night) before rinsing thoroughly.

	CODE	FORMAT	Qty per carton
	1050000025	10 L	1 pc per crt

Two devices, one purpose: the direct fight against the main problems of plants

Among the main purposes of the Bitecare® method, the direct elimination and optimal control of parasites (insects and mites) and microorganisms (bacteria and fungi) stands out. The approach is mainly intended for tall tree species - broadleaves and conifers - and is not affected by: plant size, plant species and age of the plant.

DURATION OF TREATMENT WITH BITECARE®

Against the main problems of broadleaves, only one annual intervention is sufficient. On conifers, the benefits of endoinfusion with Bitecare® can even last for several years.

- **Pine processionary**
Thaumetopoea pityocampa
- **Horse-chestnut leaf miner**
Cameraria ohridella
- **Sycamore lace bug**
Corythucha ciliata
- **Pine tortoise scale**
Toumeyella parvicornis
- **Kuwana pine mealybug**
Crisicoccus pini
- **Afidi:**
 - Poplar woolly aphid**
Phloeomyzus passerinii
 - Oak woolly aphid**
Diphyllaphis mordvilkoii
 - Woolly beech aphid**
Phyllaphis fagi
 - Linden aphid**
Eucallipterus tiliacae
 - Elm aphid**
Tinocallis platani
 - Cypress aphid**
Cinara cupressi
 - Green-striped fir aphid**
Cinara pectinatae
- **Eriophyid mites:**
 - Maples mite**
Artacris macrorhynchus
 - Artacris macrorhynchus**
Eriophyes macrorrhynchus
 - Linden mite**
Phytoptus leiosoma
 - Ash tree mite**
Eriophyes fraxini
 - Plane tree mite**
Eriophyes pseudoplatani
- **Palm weevil**
Rhynchophorus ferrugineus

BIBLIOGRAPHY

- Dal Maso E., Linaldeddu B.T., Fanchin G., Faccoli M., Montecchio L., 2019. *The potential for pesticide trunk injections for control of thousand cankers disease of walnut*. Phytopathologia Mediterranea 58(1): 73-79. doi: 10.14601/Phytopathol_Mediterr-23598
- Acquisanta F., Bacci L., Baser N., Carmignano P.M., Cavalieri V., Cioffi M., Convertini S., Accolti A., Dal Maso E., Diana F., Diana L., Di Carolo M., Dongiovanni C., Facchinetti D., Fedele F., Fumarola G., Gammino R.P., Garganese F., Lamaj G., Maffioli G., Mezei I., Montecchio L., Picciotti U., Porcelli F., Russo V., Salerno M., Schiavarelli A., Sefa V., Tescari E., Verrastro V., 2018. *Tradizione e innovazione nel controllo del Philaenus spumarius Linnaeus, 1758 (Hemiptera Aphrophoridae)*. Atti Giornate Fitopatologiche 2018, 1, 181-190.
- Mezei I., Convertini S., Cioffi M., Drei F., Tescari E., Torné M., Dongiovanni C., Picciotti U., D'Accolti A., Dal Maso E., Montecchio L., Porcelli F., 2017. *Isoclast™ Active for controlling Xylella fastidiosa invasion via vector control*. European conference on Xylella fastidiosa: finding answers to a global problem. Palma de Mallorca, 13-15 Novembre 2017
- Dal Maso E., Cocking J., Montecchio L., 2017. *An enhanced trunk injection formulation of potassium phosphite against chestnut ink disease*. Arboricultural Journal 39 (2), 125-141. doi: 10.1080/03071375.2017.1345538
- Dal Maso E., Montecchio L., 2015. *Comparative trials of four potassium phosphite formulations against chestnut ink disease by trunk injection*. In: Marčić D., Glavendekić M., Nicot P. (Eds.). Proceedings of the 7th Congress on Plant Protection. ISBN: 978-86-83017-27-0. Plant Protection Society of Serbia, IOBC- EPRS, IOBC-WPRS, Belgrade, 2015, pp. 225 - 229.
- Dal Maso E., Cocking J., Montecchio L., 2014. *Efficacy tests on commercial fungicides against ash dieback in vitro and by trunk injection*. Urban Forestry & Urban Greening 13 (4), 697-703. doi: 10.1016/j.ufug.2014.07.005
- Montecchio L., 2013. *A Venturi effect can help cure our trees*. J Vis Exp. 80. doi: 10.3791/51199
- Montecchio L., 2012. *Bite: A low impact tool for trunk injections*. Journal of Plant Pathology, 94 (4, Suppl.).



newpharm.it/bitecare-system

NEWPHARM® organises training workshops for the sector's professionals to learn how to master the application technique and provide the best therapeutic strategies for every need.



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