LASER CONSULT

Carrier materials for mosquito-larvae killing pesticides

Our partner, a Hungarian Institute has developed a novel way for the production of carrier materials for mosquito-larvae killing pesticides. They are interested in a license agreement for the production of pesticide carrier substrate or selling of production equipments or the carrier material itself.

Innovation of the products:

The subject of the present invention are carrier materials for mosquito-larvae killing pesticides (carrier composites). Numerous insecticide preparations have already been developed for exterminating the adult mosquitoes. However the resistency and extermination of other useful insects are problematic and there are non-avoidable side effects.

Since the mosquito-larvae mainly live at water surface their extermination can be limited to the living area of mosquito larva. Having realized this fact a lot of larvicide have been developed that used mineral and vegetable oil derivatives to float on the water surface. A common disadvantage of these materials is the environmental damage.

Taking into consideration the environmental damage, some selective biological larvicides have also been developed. Since the mosquito larva live on water surface, some floating carriers have also been developed to carry these biological larvidices. The main disadvantage of these carriers is their inability to decompose in the environment due to their artificial polymer content.

The mechanical strength of the low-density carriers is generally low due to the presence of large amount of air pores. Therefore, their spray from aircrafts is not useful due to their low level of stability towards mechanical impacts.

Presently no suitable carrier is available for biological or chemical larvicides which would ensure all of the required abilities such as floating/controlled time floating on water surface, controlled release of larvacide, environmental friendly with selective components, controlled sinking and decomposition time, good storage stability and mechanical strength for homogeneous spraying from aircrafts. Therefore our partner has developed some new carrier materials for mosquito-larvae killing pesticides (carrier composites) and mosquito-larvae killing products (larvicide composites) which fulfil all of the above mentioned requirements and have also developed some appropriate procedure for their manufacture.

A special kind of the formulation given in the present invention (which is possible to be manufactured upon request) is a multilayer carrier/larvicide composite granulate where the grains have an inner solid nucleus and may be built up from one or more outer layers which have larger density than the density of water. The thickness, type and amount of the outer layers control the dissolution/peeling off time. After dissolution/peeling of some of the outer layers, the density of the inner nucleus becomes dominant and the granulates start floating. The release of the larvicides start and the extermination of the mosquito larva begins.

It gives a chance to perform the spreading of larva killing granules before vegetation. The granules are sunk in the water after spreading (before vegetation grows). Later (after large growth of vegetation when direct spreading is not possible) the outer layer of the granules is peeled off and these are lifted to the surface, the larvicide composites release the larvicide.

Main advantages:

Advantages of the technology:

- The special low-density highly porous carrier material can absorb a lot of liquid (ca. double of its weight), namely the fermentation liquor containing larvicides
- The air-drying in mild conditions gives a stabilized encapsulated biological mosquito killing agent without liophylization step
- The chemical composition of the granules gives an appropriate medium to stabilize and enhance the effectivity of the enzymes of larvicides

Advantages of the product:

- Low-density and sizes
- Cheap air-spreadability
- High surface density on water
- Controlled larvicide capacity
- Floatability and time-dependent sinkability
- Low production costs
- Selectivity for blood-sucking mosquitoes
- Combinability with other active ingredients
- No environmental pollution
- Long storage ability
- Combination with attractants for female mosquitoes to put larva in a treated area

Potential areas of use:

Typical application areas:

- environment protection
- agriculture
- tourism
- **war against malaria, dengi and mosquito-spreaded diseases**

Typical customers:

- municipalities
- government (E.g. India)

Intellectual property status:

International patent (WO), European and USA applications

Type of collaboration:

The client is interested in:

- license agreement (for the production of pesticide carrier substrate)
- sales of production equipment
- sales of the carrier material (with option of applying customer chosen pesticide onto it)

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