

<sup>3</sup>*School of Physical Sciences, Jawaharlal Nehru University, New Delhi, India*

<sup>4</sup>*Indian Statistical Institute, Baranagar, Kolkata, India*

\*Corresponding author.

E-mail: [anirsukul@gmail.com](mailto:anirsukul@gmail.com) (A. Sukul)

The effect of potentized CCC and potentized maleic hydrazide (MH), a growth retardant was studied on the growth of cowpea. We studied further to see whether CCC 30 prepared with nano particles was more effective than the usual CCC 30. CCC 30, CCC 200, MH 30 and ethanol 30 (control) were prepared by the standard procedure of successive dilution (1:100) followed by succussion. CCC 30 (nano) was prepared by initially triturating CCC with copper nano particles. The triturated material was later diluted and succussed following the standard procedure. Ethanol 30, prepared in the same way, was used as the control. Plants grown in earthen pots were treated separately with each of the test potencies by foliar spray. The application was repeated seven times. All the treatments significantly increased plant growth, chlorophyll, sugar and protein in the leaves. CCC 30 (nano) and CCC 200 were more effective than CCC 30. Of the four agents MH 30 induced mamum protein synthesis in the leaves.

## Clinical evaluation of the effects of Arnicare gel, a homeopathic preparation in sport related pain and stiffness. The efficacy and safety of a homeopathic arnica gel (Arnicare®) in the treatment of sports

Sion Nobel<sup>1</sup>, Christophe Merville<sup>3,\*</sup>, Christopher Baker<sup>1</sup>, Anne-Laure Fayard<sup>2</sup>, Laurence Terzan<sup>2</sup> and Costas Loullis<sup>1</sup>

<sup>1</sup>*Global Clinicals, Inc. USA*

<sup>2</sup>*Boiron, France*

<sup>3</sup>*Boiron, USA*

\*Corresponding author.

E-mail: [christophe.merville@boiron.com](mailto:christophe.merville@boiron.com) (C. Merville)

**Objective:** To evaluate the efficacy and safety of a homeopathic arnica gel (Arnicare®) in the treatment of sports related muscular soreness and pain.

**Design:** Randomized, double blind, placebo controlled clinical trial

**Setting:** Self use of an over-the-counter preparation by athletes participating in a club sport activity.

**Subjects:** Moderately trained athletes who experienced pain and stiffness after competitive sports games.

**Interventions:** Arnicare®, a homeopathic gel containing 7% arnica montana 1X, or matching placebo, applied to the

lower extremities 3 times daily shortly before and after sports games until resolution of symptoms.

**Main outcome measures:** Pain and stiffness at different time points as assessed on a 100mm visual analogue scale after in total three sports games.

**Results:** 120 subjects (54 males, 66 females) were enrolled and randomized into two groups of 60. Subjects were mainly basketball players (85%) and the groups were comparable at baseline. The overall (baseline adjusted) level of stiffness during the 72 hours following the sports game was significantly less in the Arnicare group as compared to the placebo group (23.7mm versus 29.1mm, P=0.02). With regard to the overall level of pain there was a similar trend that did not reach statistical significance (24.9mm versus 27.9mm, P=0.17). Between group differences were most pronounced 12-36 hours post-exercise. 2 subjects in the arnica group experienced mild side effects (slight tingling, itching) that did not lead to discontinuation of the treatment.

**Conclusions:** Arnicare® gel can be used after sports activities to help with the short term effects of exercise stiffness and pain, as a substitute for OTC analgesic and anti-inflammatory drugs: very few subjects used any analgesic in conjunction with Arnicare® gel. Furthermore, Arnicare® gel was safe in use.

## Effects of homeopathic treatments on strawberry plants in field

Grazia Trebbi\*, Giovanni Dinelli, Ilaria Marotti, Valeria Bregola, Alessandro Benni and Lucietta Betti

*Department of Agricultural Sciences, University of Bologna, Viale Fanin 42, 40127 Bologna, Italy*

\*Corresponding author.

E-mail: [grazia.trebbi@unibo.it](mailto:grazia.trebbi@unibo.it) (G. Trebbi)

In conventional agriculture strawberry plants are generally treated with fungicides to control pathogens. However, consumer concerns about possible risks associated with the use of fungicides, along with development of pathogen resistance, have resulted in an intensive search for safer, more effective control options that pose minimal risk to human health and the environment. One of them could be the use of homeopathic treatments, that, thank to their extreme dilution level, do not lead to any toxicity or accumulation in the environment.

The present research aimed at verifying the efficacy of such treatments on strawberry plants by evaluating phytopathological (control of infection induced by the fungus *Botrytis cinerea*, one of the most common pathogen of this crop), agronomical (fruit production) and biochemical (antioxidant activity, polyphenols and flavonoids) parameters. We performed three subsequent field trials (in 2010, 2011 and 2012) at a biodynamic farm: in all trials, the field was divided in plots consisting of 18 plants/treatment, each