ECHINOSHIELD®: a safe active, standardizd Echinacea pallida extract for nutraceutical use.

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ABSTRACT

Study Objective: development of an Echinacea pallida roots dry extract with anti-inflammatory and immunomodulating activity for nutraceutical products.

Method: our work concerned the control of the entire supply chain from the selection of high quality raw material to the final production through:

- the selection of the highest quality Echinacea pallida roots on the Italian market
- the development of the extraction method to ensure a triple standardized extract
- the cooperation with industrial partners for the scale-up phase
- the formulation and testing of the extract in the final products (tablets and syrups)

BIOLOGICAL EFFICACY TEST

Objective of this study was to develop a food grade dry E. pallida extract, characterized by a standardized quantity of the two main active Echinacea compounds and by a lack of alkaloids (>0.05%), controlling the entire supply and production chain and to test its immunomodulating and antiinflammatory activity in vitro on human macrophages and dendritic cells.

RESULTS

SUPPLY AND PRODUCTION CHAIN

TRIPLE STANDARDIZATION

ACTIVE COMPOUND

Antioxidant (1)[1] ≥ 30%

Total polysaccharides

Immunomodulatory (1) [3] ≥ 30%

Alkylamides

Immunomodulatory effect (2) High hydrophilic compounds: more safety investigations are needed

Echinacoside (≥2%)

STANDARD

ALKYLAMIDES

Medium-high weight polysaccharides

LATPOLYSAC

Echinacoside

Echinoshield®

ECHINOSHIELD (Ech=IR) significantly reduced (p<0.01), after inflammatory stimulus, CD80 and HLA-DR on dendritic cells in comparison to cont. The effect was comparable to the benchmarks.

ECHINOSHIELD (Ech=IR) significantly reduced (p<0.01), after inflammatory stimulus, IL-6, IL-10, TNF-α on dendritic cells in comparison to cont. The effect was comparable to the benchmarks.

ECHINOSHIELD® (Ech=IR) at low dosages, significantly reduced (p<0.01), after inflammatory stimulus, IL-1β, TNF-α and IL-10 on macrophages, in comparison to cont. The effect was comparable to the benchmarks.

CONCLUSION

Many are the Echinacea preparations commonly used in nutraceutical products in Europe and North America. These usually differ appreciably in their composition, mainly due to the use of variable plant material and extraction methods. Therefore it’s very important to select high quality, safe, standardized extract. For this reason, we developed our own unique extract containing each production phase ensuring quality through the selection of Italian E. pallida organic roots and any standardizing the main active compounds and the biological in vivo testing. Since the obtained results were positive, this work could open the way to deeper investigation about safety and clinical efficacy of ECHINOSHIELD® in comparison with other Echinacea extracts.