

Self-drying Plant Oils: Biobased Plant Skin Protection

Institute of Crop Science and Resource Conservation
Research Group Renewable Resources
University of Bonn



Core Team

PhD Student: Vera Breiing, MSc

Scientific Supervisor: Dr. rer. hort. Thorsten Kraska*

Head of Research Group: Prof. Dr. Ralf Pude

Cooperation

with & development Michael Petry

supported by: Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen (FKZ: 17-02.04.01-08/2018)

Promotionsstipendium der Deutschen Bundesstiftung Umwelt für Vera Breiing (AZ: 20016/420)



Why Biobased Plant Skin Protection?

Request

Societal challenge to develop environmental safe plant protection products.

Approach

Protection of plants – especially plant surfaces – through self-drying plant oils which form oxidative drying film on surfaces



What are self-drying plant oils?

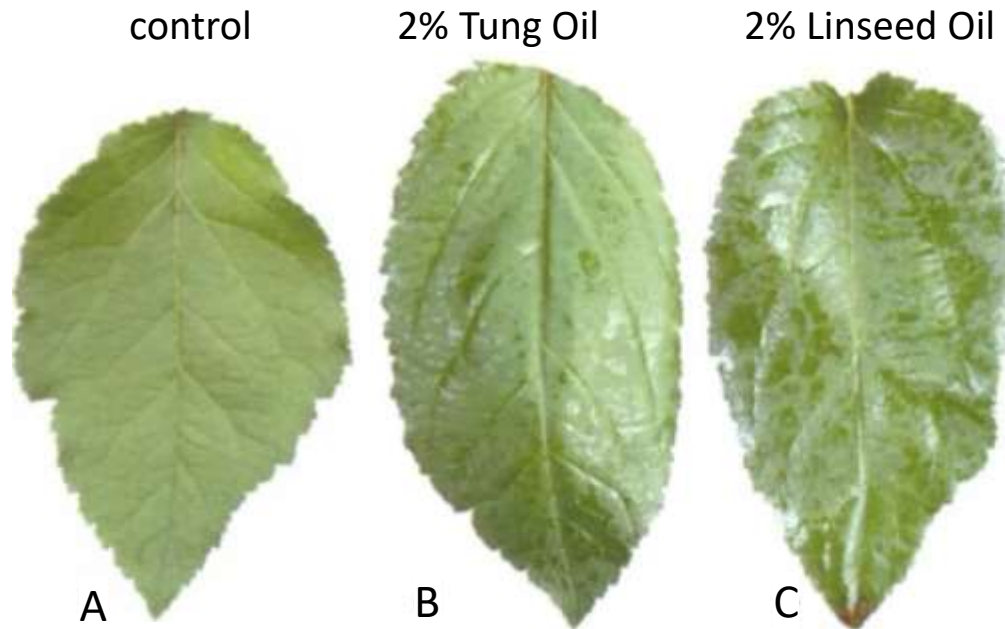
- ... are natural products from plants
- ... are Triglycerides
- ... have a high content of unsaturated fatty acids (e.g. α -linolenic acid, α -Eleostearic acid)
- ... have a low oxidation stability at ambient Oxygen levels depending on numbers of double bounds, C-number, and content of trans fatty acids
- ... Are able to form films on surfaces
- ... Have a low ecotoxicity
- ... Examples are linseed oil, tung oil

„Self-drying Plant Oils“ – Facts



- easy to apply
- self-drying, oxidative drying
- No ecotoxicity and environmentally friendly (safe)
- Non-persistent, biologically degradable
- long-term adhesion
- further positive effects

Visible Sprayfilms on Apple leaves



Visible spray films on apple leaves after 4 applications.

- ... Protective control of bean rust on common bean and apple scab
- ... Curative control of aphids on beans and potato beetle in an in vitro test
- ... Control is local (no systemic effect in the plants)
- ... Oils were applied up to a concentration of 2%
- ... Oils can be combined with other substances
- ... Oils are not washed off
- ... Plants show a lower moisture stress index and higher greenness

Contact

Dr. rer. hort. Thorsten Kraska

kraska@uni-bonn.de

+49 (0)2225 99963-63

www.nawaro.uni-bonn.de

