

Position paper on the use of potassium alum in organic banana production

Characterization of potassium alum

'Potassium alum' or 'potash alum' are common names for potassium aluminium sulfate. It is commonly found in the hydrate form. Its chemical formula is $\text{KAl}(\text{SO}_4)_2 \cdot 12(\text{H}_2\text{O})$; the CAS number is 7784-24-9. Potassium alum is a naturally occurring sulfate mineral. It is highly soluble in water.

Use of potassium alum in banana production

Bananas grow in bunches ('banana stems'), which comprise 3 – 20 tiers ('hands'), each of which consists of 10 – 20 banana fruits ('fingers'). For harvesting, the entire bunch is cut off the plant. Then, the bunch is divided into small clusters of fruit ('dehanded'), to facilitate cleaning. Latex will exudate from the wounds where the clusters were cut. If it is allowed to dry on the fruit, it will form dark stains, which give the fruits an unattractive appearance. To prevent this, the clusters are washed in 'delatexing baths'.

It is generally recommended to add potassium alum to the delatexing baths (Yañez *et al.*, 2004; Anyasi *et al.*, 2013; Gutierrez Gonzales, 2013). This helps remove the latex (Yañez *et al.*, 2004; Anyasi *et al.*, 2013), controls pathogens in the wash water (Anyasi *et al.*, 2013; Gutierrez Gonzales, 2013) and promotes the proper healing of the cutting wound (Yañez *et al.*, 2004; Gutierrez Gonzales, 2013).

Proper healing of the wound is important to prevent crown rot. Crown rot is a disease complex caused by several fungi, sometimes in association with bacteria (Hailu *et al.*, 2013). It develops, if these pathogens can enter banana tissues through wounds. It is mainly a problem in export bananas, where the duration of transport allows the disease to progress. In organic bananas, wound healing is the key strategy for preventing crown rot, because fungicide dips are not allowed.

Authorization under EU organic legislation

The use of potassium alum in organic banana production has been authorized for many years. Already in 1997, potassium alum was listed as an authorized product for plant protection, with the specification 'prevention of ripening of bananas' (EC, 1997).

In 2014, the list of substances authorized for organic farming was aligned with the list of active substances authorized as pesticides for general agriculture in the EU (Commission Implementing Regulation (EU) 354/2014). On this occasion, it was ascertained that potassium alum is not registered as a pesticide for general agriculture, and it was therefore deleted from the list of substances authorized for organic production (EC, 2014). This was done for administrative reasons (alignment of legislation), and there was no public discussion whether or not potassium alum should continue to be used in organic banana production. The deletion of potassium alum has caused uncertainty among certifiers whether the use of potassium alum can be tolerated any more.

Reflections and conclusions

- The use of potassium alum in delatexing baths is important for the quality of organic bananas. It reduces latex stains and prevents crown rot.
- Potassium alum is not used to prevent ripening of bananas. Its use is not for plant protection, nor for any other purpose covered by the EU organic legislation¹. Therefore, it cannot be listed explicitly in the EU organic legislation as an authorized substance.

¹ see Council Regulation (EC) No 834/2007, Art. 16

- The use of such substances is acceptable, if they comply with the objectives and principles of organic farming. In this situation, it appears that potassium alum can continue to be used in organic banana production from a legal point of view.

Disclaimer: This position paper does not anticipate a full technical evaluation of potassium alum. It may have to be revised if alternatives are developed which comply better with the principles of organic production.

References

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Bernhard Speiser and Paul van den Berge, FiBL