

## ACETIC ACID IN CHOCOLATE REVEALS ORIGIN

**PhD student Valentina Acierno looked for specific traits in chocolate that can be traced back to the country of origin and the growing conditions of the cocoa beans used. Various substances in the chocolate pointed her in the right direction.**

Acierno graduated earlier this month with a PhD project supervised by Saskia van Ruth, professor of Food Authenticity and Integrity at Wageningen. She researched how you can trace which species of cocoa bean – Criollo, Forastero or Trinitario – the chocolate was made from, and on which continent – Africa, South-East Asia or Latin America – the beans were grown. In other words: she researched the botanical and geographical origin of the chocolate using compounds and isotopes from the different cocoa beans. To do this, she

looked for ‘markers’ that can be measured during the stages of production, processing and consumption.

### MARKERS

When Acierno compared the composition of the various cocoa beans from different countries, it turned out that acetic acid concentrations were characteristic for the Criollo cocoa bean throughout the entire production chain. What is more, the level of acetic acid provided information about the fermentation and drying conditions of the three different cocoa beans.

Acierno’s results have not been applied yet by quality control organizations such as the Netherlands Food and Consumer Product Safety Organization. She thinks researchers will first need to analyse many more samples to confirm her markers, but her research is important for



Dutch chocolate producers and labels such as Max Havelaar. Under Dutch legislation, all chocolate produced in the Netherlands must fulfil sustainability criteria by 2025. **AS**