

PhD Project Advertisement

Project title: *From hive to home: A holistic approach to honey authentication*

Project No: FBS25-36-Anastasiadi-cq

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Tim Read, Rowse Honey Ltd

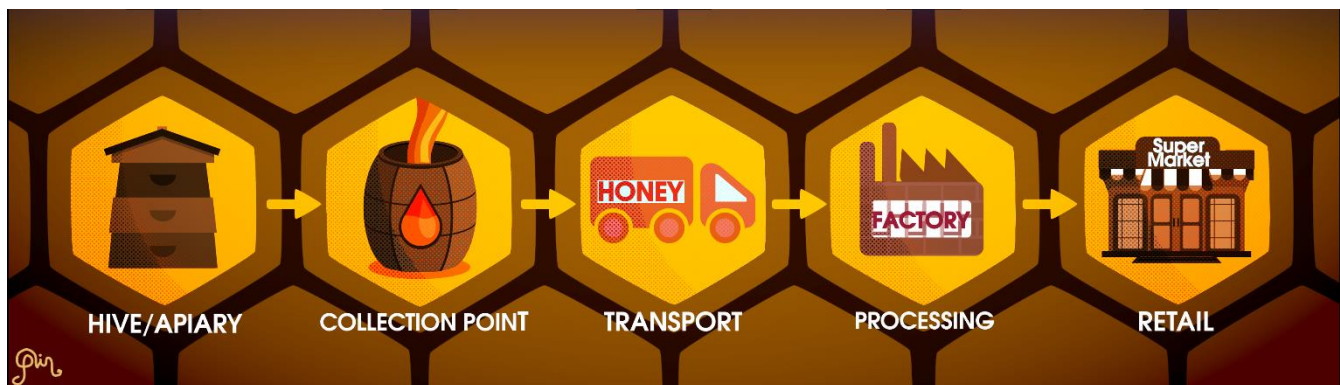
Project description: Honey is a natural and nutritious food product which is becoming increasingly popular with global consumption projected to increase 5-fold between 2021-2026. The UK is far from self-sufficient in honey production and is among the top honey importers worldwide with over 50,000 tonnes imported annually primarily from China.

The global honey supply chain can be complicated which in combination with the natural variability of honey composition can make it a vulnerable commodity to fraud such as by origin mislabelling or sugar-syrup addition causing concern among consumers.

It is important that robust analytical tests are developed to rebuild consumer confidence and ensure product authenticity and safety. DNA-based methods have been widely used in food authentication to identify the presence of plant species in various food products or raw ingredients. DNA barcoding is a promising technology which uses characteristic molecular biomarkers to identify plant, animal and microbial species in complex food samples. Our team at Cranfield has recently developed two novel methodologies for the detection of sugar syrups in UK honeys with a high degree of sensitivity and specificity [1] generating significant public and media attention (<https://www.bbc.co.uk/news/articles/c17gq4n5vn0o>).

This PhD project will use advanced DNA barcoding techniques, bioinformatics tools and mathematical modelling to establish honey provenance and purity of honeys in the UK market. The overall project aim is to authenticate imported honey and minimise the risk of adulteration by adopting a holistic approach across the supply chain.

This BBSRC-funded CASE studentship presents a unique opportunity to promote sustainability in the honey supply chain and fair-trade practices while raising awareness of the importance of the honey and beekeeping industry for biodiversity and environment protection.



References

1. Dodd, S., Kevei, Z., Karimi, Z., Parmar, B., Franklin, D., Koidis, A., Anastasiadi, M., 2025. Detection of sugar syrup

adulteration in UK honey using DNA barcoding. Food Control 167, 110772.
<https://doi.org/10.1016/j.foodcont.2024.110772>

Training opportunities: This multidisciplinary project provides training in Molecular Biology, Bioinformatics, Statistics and Machine Learning. The student will have access to Cranfield University's "Doctoral Researchers' Core Development" (DRCD) programme and the annual PhD training course in "Applied Data Science for Biologists" led by the project's PI. This project will also be conducted with the support of the Institute for Global Food Security at Queen's University Belfast where the student will be offered additional training in state-of-the-art bio(analytical) techniques for quality and safety analysis. This project will also enable the student to complete a 3-month placement with Rowse Honey Ltd, one of the major stakeholders in the honey industry, to help promote sustainability and integrity within the honey market.

Project supervision style: The student will have a supervisory team comprised of three academics and one industrial partner. The Cranfield supervisors will provide day-to-day supervision. The usual mode of supervision consists of weekly meetings face-to-face between the two Cranfield supervisors and the student to discuss progress updates, provide practical help and plan next steps. A more formal monthly online meeting will be organised with all four supervisors to provide progress updates and discuss future directions. A biweekly meeting also takes place for the whole of the Bioinformatics group in which all students provide brief updates of their project and interact with other members of the group to receive feedback and advice. The student's progress will be evaluated as the CU's standard practice, monthly meetings-minutes will be recorded, with feedback, and submitted to CANVAS. Annual progression reviews will be held with independent experienced staff.

Student profile: We encourage applications from candidates with a background in bioinformatics, molecular biology, computational biology, biochemistry or other related disciplines.

Stipend (Salary):

FoodBioSystems DTP students receive an annual tax free stipend (salary) that is paid in instalments throughout the year. For 2024/25 this is £19,237 (£21,237 at Brunel University) and it will increase slightly each year at rate set by UKRI.

Equity Diversity and Inclusion:

The FoodBioSystems DTP is committed to equity, diversity and inclusion (EDI), to building a doctoral researcher(DR) and staff body that reflects the diversity of society, and to encourage applications from under-represented and disadvantaged groups. Our actions to promote diversity and inclusion are detailed on the [FoodBioSystems DTP website](#) and include:

- Offering reasonable adjustments at interview for shortlisted candidates who have disclosed a disability or specific learning difference.
- [Guaranteed interview](#) and [applicant mentoring](#) schemes for applicants, with UK home fees status, from eligible under-represented ethnic groups.

These are opt-in processes.

Our studentships are offered on a part time basis in addition to full time registration. The minimum registration is 50% FT and the studentship end date will be extended to reflect the part-time registration.

For up to date information on funding eligibility, studentship rates and part time registration, please visit the [FoodBioSystems website](#).