# Characterization and study on the recycling of coffee by-products for the manufacture of feed and functional food intended for human use and bioplastics.

Agata Nolasco (agata.nolasco@unina.it)

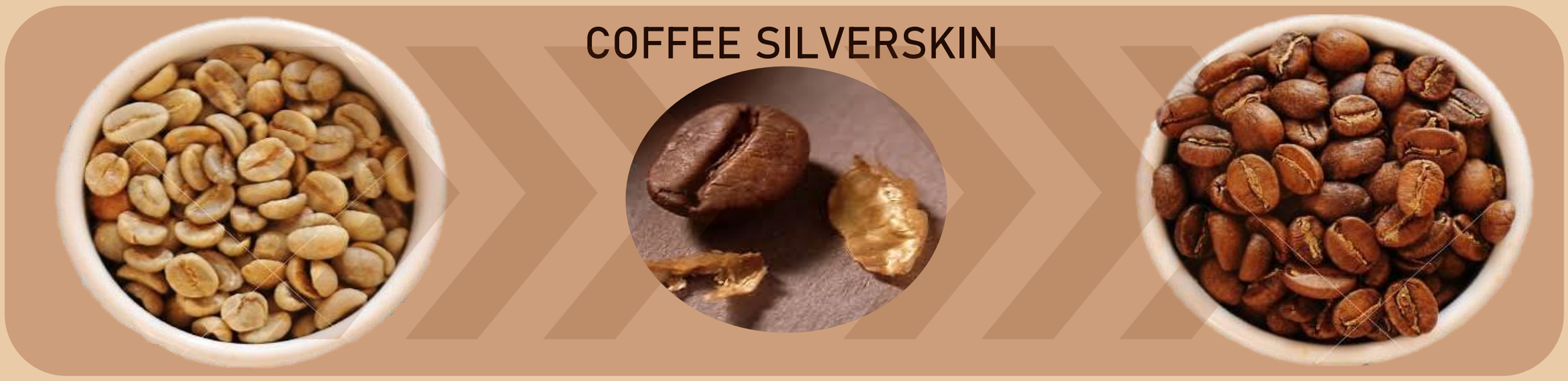
Dept. of Agricultural Sciences, University of Naples Federico II, Portici, Italy

Tutor: Prof. Teresa Cirillo

## State of the Art

Coffee is one of the most consumed beverages in the world. As a result, millions of tons of coffee by-products are produced every year. Among these, the silverskin of coffee is the only waste product from the roasting phase of coffee beans, which causes an important cost to roasting companies due to the volume and large quantity produced. The importance of managing this by-product for the sustainable development of the coffee supply chain itself is evident in the context of a circular economy that finds ecological and economical solutions to costly disposal problems. Coffee silverskin (CS) is a thin tegument covering the coffee bean and separates from it during the roasting phase of the green beans. The main component of CS is dietary fiber (50–70%), which includes insoluble (more than 45%) and soluble (about 10%) fiber. The fibers present are mainly made up of 18% cellulose and 13% of hemicellulose. CS also contains proteins, fats and ash equal to 16.2–19.0%, 1.56–3.28%, and 7%, respectively. It is also characterized by phenolic compounds and abundant bioactive metabolites with significant biological activities.

Therefore, for the purposes of correct reuse, given its applicability in many sectors, it is essential to enhance this by-product which emerges as an exciting new resource.




## Objectives and Milestones

- Determination of the nutritional properties of silverskin for the production of highly functional food products
- Development of *Hermetia illucens*-based feed
- Development of functional foods with a high fiber content through the addition of silverskin in baked products
- Characterization and production of paper-based packaging products and feasibility assessment of coffee silverskin-based bioplastics

## References

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