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Food Waste Applications

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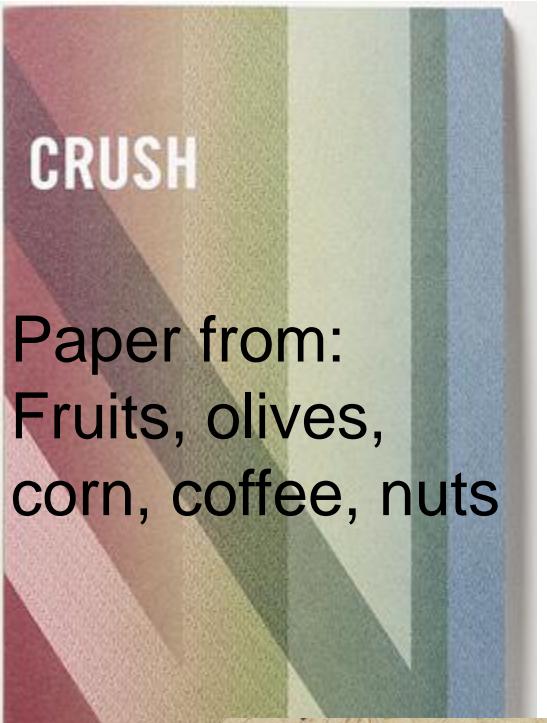
Using Food Waste



Construction Materials



Animal blood as a binder for bricks



Packaging

Sugar cane, Wheat straw,
potato, corn, spent grains



Biodiesel / Anaerobic Digestion

Cellulosic materials, Bakery waste, brewery grain/waste water, potatoes, corn, coffee, whey



The Biogen Process





Fertiliser

Composting, digestate from AD



Animal Feed

e.g. straw, surplus bread, wheat-bran/germ, spent grain, whey, pomace, orange peels, potatoes



Food Ingredients



Aquafaba



Dietary Fibre
Oil-seed cakes,
veg waste

Emulsifiers
Milk



Bioactives (including pigments, antioxidants and volatile fatty acids)

Oil-seed cakes, fruit and veg waste, bakery waste, potato, seed kernels, brewing waste (grains and wastewater), fish wastes, olive mill wastewater

Biopolymers films/collagen

Oilseeds and pulse waste, Fish waste





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Companies with Food Waste at the centre



Redirecting Surplus Food





Companies with Food Waste at the centre



Surplus, below-spec,
“wonky” fruit and veg

45% of the fruit and
vegetables produced
are wasted



wonky
veg
boxes
.co.uk

TINY
LEAF





Products containing





Companies with Food Waste at the centre



Waste Coffee Grounds
UK produces 500kt/year



Products containing



**KAFFEE
FORM.**

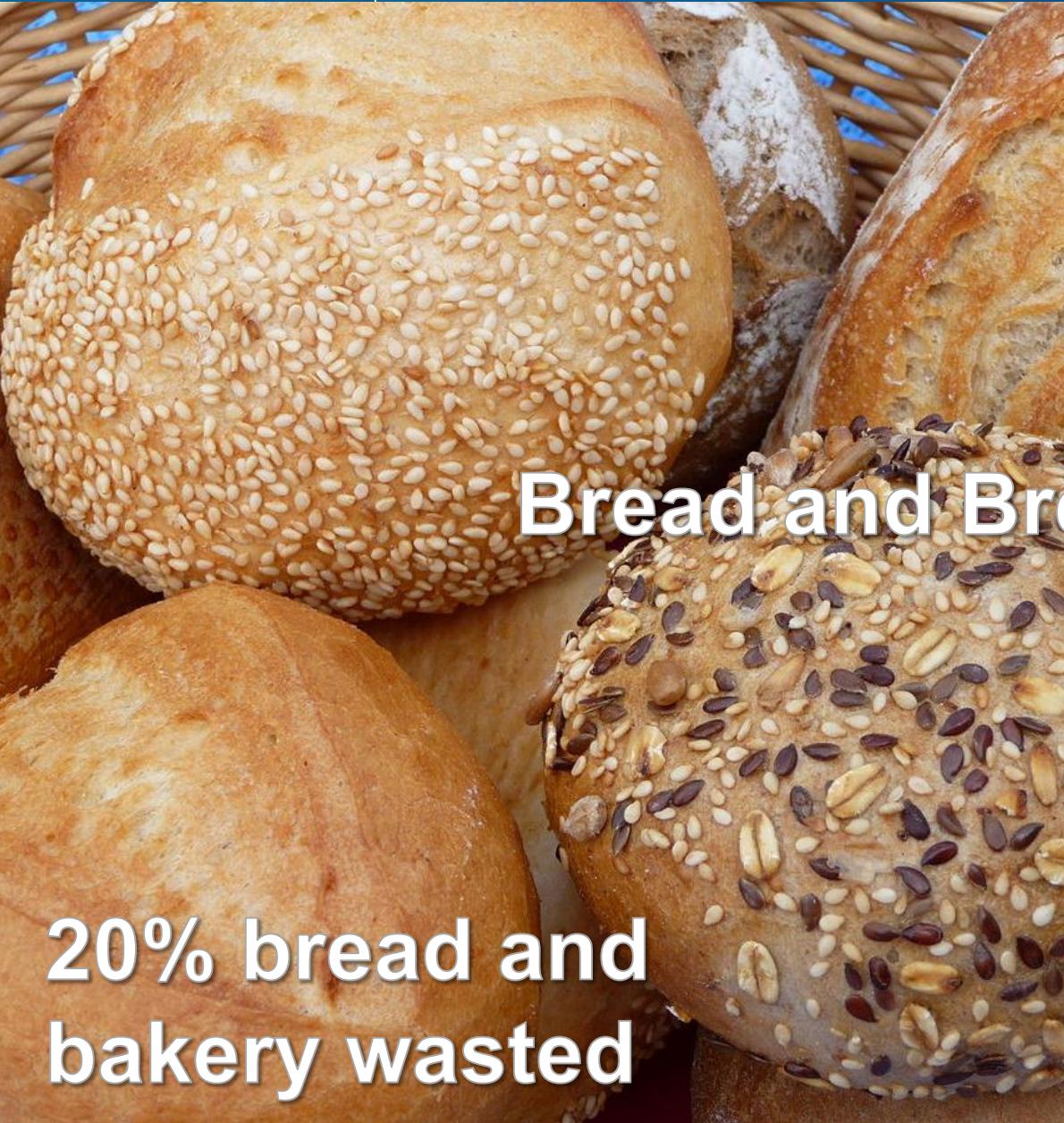


 **bio-bean**
powered by coffee





Companies with Food Waste at the centre





Products containing





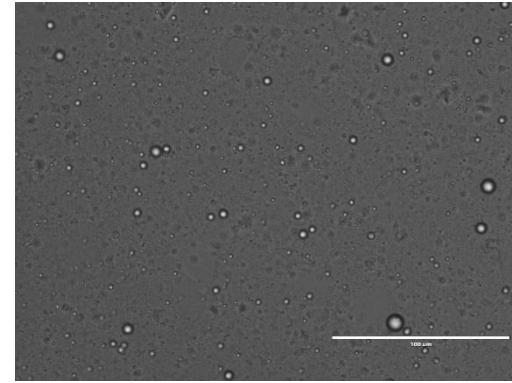
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Research Interests



Food Waste Valorisation Research



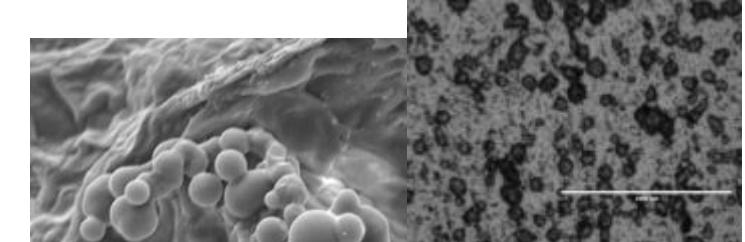
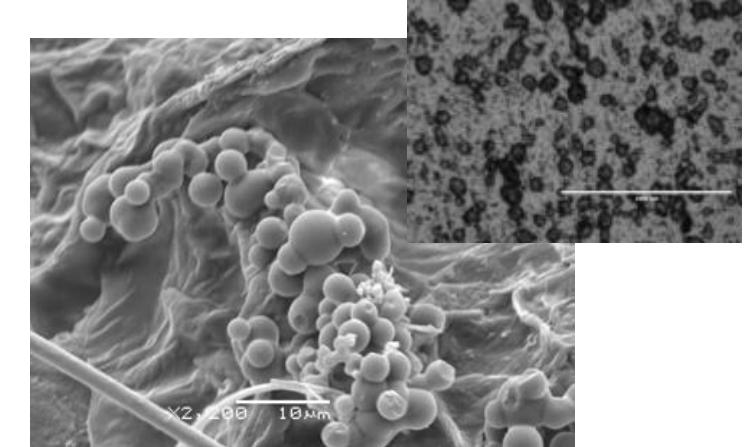
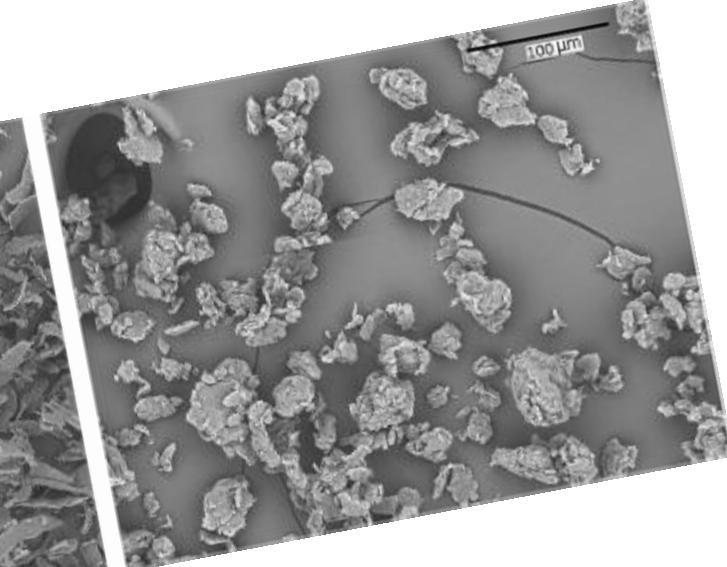
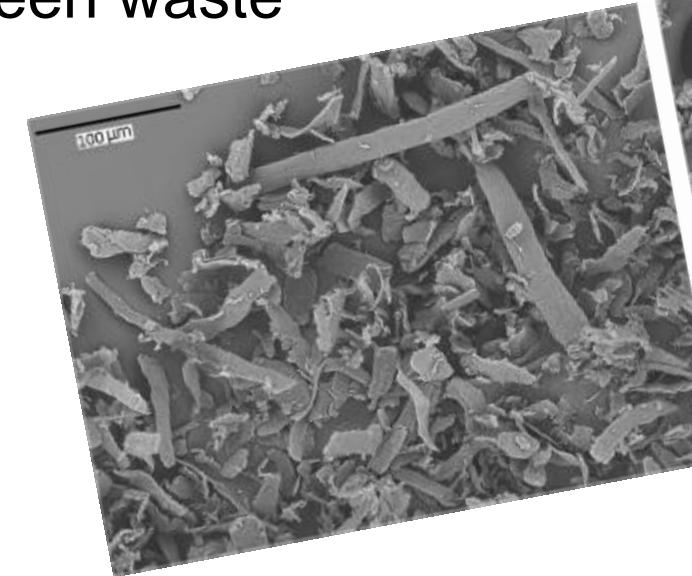
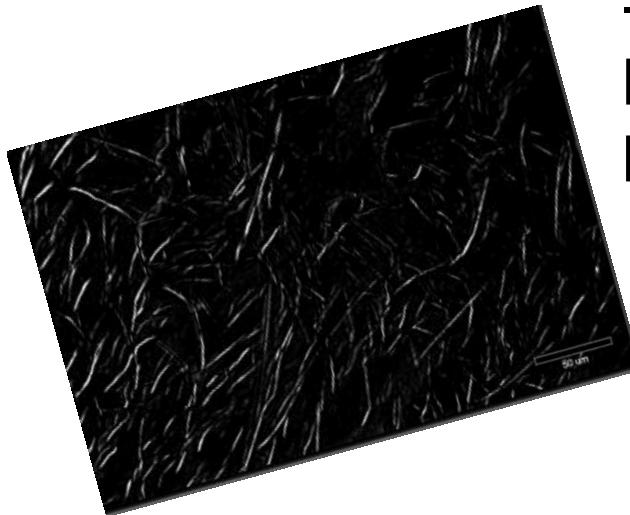
Food Sciences

Food Structuring

- Fibre, celluloses and gums
- Lignin, hydrophobic particles (emulsion stabilising)
- Natural emulsions from oilseeds
- Proteins

Nutrients from green waste

Brewing waste



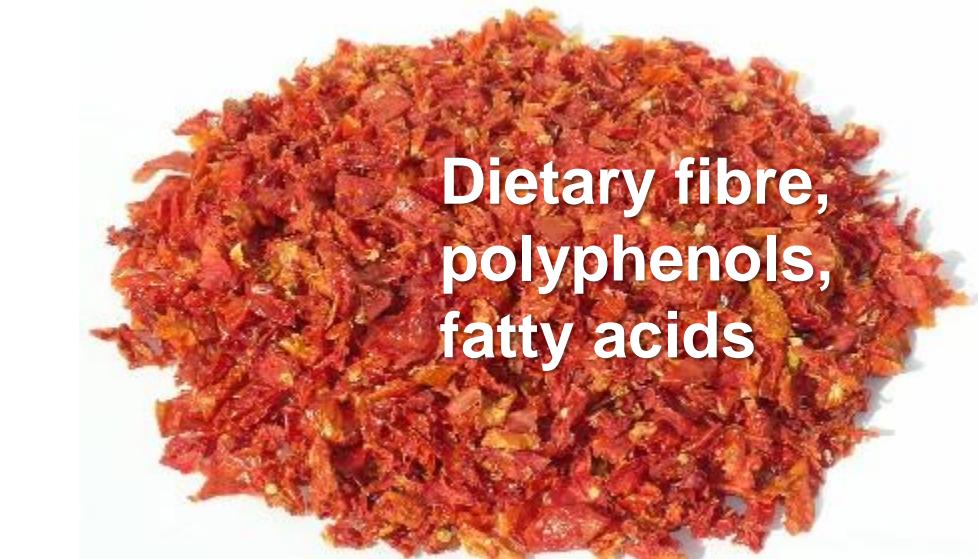


Specific Projects

Re-SAUCE



Dietary fibre,
polyphenols,
fatty acids



Bananas into
Biscuits



Health and Life Sciences

Constituents for health

- Medical Polysaccharides
- Phytochemicals



Engineering (Food, Water, Waste group)

Advanced processing techniques

- Drying
- Microwave
- Supercritical
- Ultrasound
- Cold Plasma

Biopolymers, functional materials

Wastewater treatment and remediation

Anaerobic Digestion





Systems Change Thinking – Creating Value from Unavoidable Food Supply Chain Wastes



Tuesday 16th January 2018
University of Nottingham,
Sutton Bonington Campus