

## Project proposal

Project title	Effect of <i>Lactobacillus acidophilus</i> fermentation on the physical structure and polyphenols of culinary herbs and spices.	
First Supervisor	Dr <input type="text"/>	Liz Opara
Second Supervisor	tbc	
School	Life Sciences	
Other member of supervisory team (no more than three KU supervisors in total)	Dr Magali Chohan, Dr Baljit Ghatora, Dr Simon Gould	
Specific requirements beyond 2:1 degree	<input type="text"/>	

### Project summary (max 4,000 characters)

#### MSc by Research

The consumption of culinary herbs and spices has increased over the past decade and studies have shown that they contain significant amounts of polyphenols which are purported to have health promoting properties. Recent studies report that digestion, *in vitro*, increases polyphenol related antioxidant and anti-inflammatory activity of herbs and spices and bioavailability studies suggest that these activities are focussed in the gut. However, to understand further the role of the colon in influencing the properties of polyphenols in these foods, the effects of fermentation on herbs and spices by gut micro flora need to be investigated. Combining expertise in nutrition, microbiology and chemistry will help to gain some insight into the role these foods play as dietary sources of polyphenols. Thus, using *Lactobacillus acidophilus*, bacteria present in the human gut and known to be able to break down plant cell walls, the effect of fermentation on the antioxidant and antiinflammatory activities of *in vitro* digested herbs and spices will be investigated. HPLC <sup>a</sup> will be used to identify the polyphenols responsible for these activities and SEM <sup>b</sup> will help to assess any physical changes in the plant material that may influence the amount of bioaccessible polyphenols.

a: High Performance Liquid Chromatography (HPLC)  
b: Scanning Electron Microscopy (SEM)