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The Science of Christmas: Dinner Table

Máirtín Mac Con Iomaire

Technological University Dublin, mairtin.Macconiomaire@tudublin.ie

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THE SCIENCE OF CHRISTMAS... DINNER TABLE

**MÁIRTÍN
MAC CON IOMAIRÉ**

The science of preservation lies behind two common Christmas foods, mincemeat and plum pudding. Both have names that are slightly misleading, as nowadays mincemeat contains no meat and plum puddings contain no plums.

It all goes back to the Middle Ages when, following harvest in late Autumn, many animals were killed as there were not enough food to feed them over winter. The meat of these animals was then preserved by combining them with dried fruit and spices and long cooking to preserve them for feasting during winter.

The origin of plum pudding or Christmas pudding is a porridge-like dish called 'furmenty' which contained fruit and spices. It altered then to become a plum porridge, or pottage, containing meat or fish and later again was stuffed into sheep's stomach to produce a form of haggis.

When pudding cloths became available, the familiar cannonball shaped plum pudding that we associate with Charles Dickens' *A Christmas Carol* became the norm. Pudding cloths could be rubbed with butter and flour before being filled with the pudding mix of suet, breadcrumbs, eggs, spices, dried fruit, meat or fish and then boiled or steamed in a cauldron. By the 18th century, improved stock-feeding and cheaper sugar had made meat preserving and spicing less necessary; so wholly savoury meat pies were coming into fashion, and sweeter 'minced' pies with very little meat. By the early 19th century, the meat eventually was left out of the plum pudding but suet remained, which is also true of mincemeat.

To preserve food you need to alter the conditions to make it unfavourable for tiny organisms, called microbes, that can spoil food, to grow. This can be done by altering the temperature (cooking food, refrigeration or freezing); altering the moisture (drying foods, salt or sugar); removing oxygen (cooking, sealing with fat or butter, vacuum packing, canning); and



What! Our two favourite Christmas desserts once contained meat?



Alcohol can also act as a preservative and it is common for certain spirits, beer, ale or cider to be added to Christmas baked goods.

The word plum refers to a prune but from the 16th century also referred to any dried fruits such as raisins, currants and sultanas.

The word is also associated with the best of things; for example a plum job. Minced pies used to be 'coffins' or 'pastry cases' filled with sweet/savoury mix of fruit and meat topped with melted butter for preservation. Over time the butter was omitted and served on top, often mixed with some spirit.

altering the pH of the food using acids such as vinegars. Both sugar and salt have the ability to inhibit microbial growth, most notably by a process known as osmosis, or dehydration.

Spices also have natural antibacterial properties and have been used for centuries as natural preservatives of food.

Dr Máirtín Mac Con Iomairé is a lecturer in Culinary Arts in the Dublin Institute of Technology, Cathal Brugha Street, whose latest book is *Tickling the Palate: Gastronomy in Irish literature and culture*

