Effect of different cooking methods on formation of cholesterol oxidation products in pork and beef

Alina, A.R., (Universiti Sains Islam Malaysia)
Ummi Syuhada, (Universiti Sains Islam Malaysia)
Syazamawati, Z.H., (Universiti Sains Islam Malaysia)
Theme Juhana, M.J., (Universiti Sains Islam Malaysia)
Siti Mashitoh, A., (Universiti Sains Islam Malaysia)
Nurul Farah Sakinah, A., (Universiti Sains Islam Malaysia)
Nurul Mawaddah, A.H., (Universiti Sains Islam Malaysia)
Nurulhuda, M.S., (Universiti Sains Islam Malaysia)

Abstract: Cooking process can lead to the formation of cholesterol oxidation products (COPs) which can give negative biological effects to human. The objective of this work was to study the effect of different cooking methods (grilled and roasted) on formation of COPs in beef and pork. The analysis involved four major steps; saponification, extraction, derivatisation and quantification by GC/MS-QQQ. Five common COPs (5-cholestane, 7-ketocholesterol, 8-epoxycholesterol, 8-epoxycholesterol and 25-hydroxycholesterol) that are generally reported in foods were analyzed to study the differences of their content between raw, grilled and roasted meat. Besides cholesterol, the most abundant compound in both types of samples that can be detected was 8-epoxycholesterol. Grilling process for both samples was observed to contain the highest cholesterol and total COPs level. Beef samples contain higher total cholesterol and COPs compared to pork. It implies that consume beef regularly gives bad effect to health. It is recommended to do analysis on the collected drip loss during the cooking methods as the cholesterol and COPs might be lost during heat treatment and more reference standards of COPs need to be used in this study. © IDOSI Publications, 2012.