Annotated Bibliography Sample

Bassioni, G., Mohammed, F. S., Al Zubaidy, E., Kobrsi, I. (2012, May 1). Risk Assessment of Using Aluminum Foil in Food Preparation. *International Journal of Electrochemical Science*, *7*, 4498 – 4509

This article analyzes the contamination of food being a major concern in developing countries through the use of three specific techniques: weight loss, environmental scanning electron microscopy and inductively coupled plasma - mass spectrometry. A better understanding of leaching assessment regarding aluminum was done through the usage of these three methodologies.

Dr. Nancy. (2012, August 21). *Leaching Metals and Chemicals from Cooking Surfaces*. Retrieved February 18, 2013, from Truth N Health, LLC. website: http://www.truthnhealth.com/2012/08/leaching-metals-and-chemicals-from-cooking-surfaces/

The article discusses the positives and negatives associated with leaching metals from cooking surfaces. Noting specifics at the onset of the article, an assessment of each type of metal is determined. The author makes it a point to speak in general and specifics on all metals covered. There is a significant emphasis on Teflon coating, iron and aluminum in the article. While there is no detailed or precise experimentation performed by the author of this article, there is much to be garnered through the facts and knowledge about each of the metals and their leaching capabilities.

Gould, J. H., Butler, S.W., Boyer, K.W., Steele, E.A. (2008, November 21). Hot leaching of ceramic and enameled cookware: collaborative study. *Journal - Association of Official Analytical Chemists* , *66*, 610-9.

The World Health Organization published an article pertaining to a study concerning hot leaching of ceramic and enameled cookware in 1983. In the particular study, scientists from 14 labs collaborated to understanding how heating of ceramic and enameled cookware causes leaching in food. Various temperatures were tested to better understand how hot the cookware has to get before leaching occurs. As 14 different studies were done using many different chemical methods, results were packaged into a report to better quantify the amounts of Pb and Cd and the effects of leaching of cookware. Researchers also sought to understand which type of cookware had the most probability of being toxic to the body.

Karbouj, R. (2008, December). A simple pre-treatment of aluminum cookware to minimize aluminium transfer to food. *Food and Chemical Toxicology*, *47*, 571–577.

An in-depth analysis is undergone in this article to analyze the effects of aluminum leaching from cookware to food. The authors show that boiling cookware in water can decrease the amount of leaching. Various pre-treatments are explored in the experiment in an effort to better understand the changes in structure associated with aluminum leaching from cookware to food.

The authors note that there is a clear distinction in the types of metabolic processes that aluminum goes through versus others such as iron, magnesium and calcium. An analysis is also given about the ingestion exposure of quantities of aluminum by the human body and the diseases that this is often associated with.

Mohammed, A., Khan, A., Nomani, A.A., Ahmed, S. (1997, November 14). Heavy metals: leaching from glazed surfaces of tea mugs. *Science of The Total Environment, 207*(1), 49–54. doi:10.1016/S0048-9697(97)00244-1

Experimentation was performed on tea mugs with heated beverages to determine whether there was heavy metal leaching. Concentrations of certain beverages were tested in mugs of metals including cadmium, iron, lead, nickel and manganese). Various temperature ranges were also used to determine the leaching capacity. The beverages used were orange juice and tea.

Mohammed, F. S., Al Zubaidy, E, Bassioni, G. (2011, January 1). Effect of Aluminum Leaching Process of Cooking Wares on Food. *International Journal of Electrochemical Science, 6,* 222 - 230.

The "Effect of Aluminum Leaching Process of Cooking Wares on Food," describes the intake of aluminum from cooking utensils as being a specific concern to community health. Leaching of aluminum from a variety of aluminum utensils in a myriad of food solutions were tested using two precise analytical methods: weight loss measurement and inductively coupled plasma-mass spectrometry. Different solutions beginning with H20 were also examined as well as different meat extract concentrations.

Rajwanshi, P., Singh, V., Gupta, M.K., Kumari, V., Shrivastav, R., Ramanamurthy, M., Dass, S. (1997, January). Studies on aluminium leaching from cookware in tea and coffee and estimation of aluminium content in toothpaste, baking powder and paan masala. *Science of The Total Environment, 193*(3), 243-249. Retrieved from http://www.sciencedirect.com/science/article/pii/S0048969796053478

The article assesses the level of aluminum leaching from cookware that were present certain dishes and beverages. Using a sequential study of experimentation, researchers tested the varying amounts of leaching present in tea, coffee, toothpaste, mouth freshener and baking powder to ascertain which of the substances had the highest levels of aluminum. Ingestion patterns within individuals are also discussed in significant detail to better understand the toxicity of leaching in the body.

See, S. W., Balasubramanian, R. (2008, December). Chemical characteristics of fine particles emitted from different gas cooking methods. *Atmospheric Environment, 42*(39), 8852–8862. doi:10.1016/j.atmosenv.2008.09.011

Is there a difference in the types of cooking methods and the amount of metal leaching that can occur? The authors of this article experiment with gas cooking to investigate whether certain cooking methods impact the amount of metal leaching on cooking utensils and in food. Specific chemical constituents and their respective concentrations are measured in a controlled

atmosphere. The scientists analyze boiling, pan-frying, stir-frying and steaming to understand whether gas cooking makes a difference in metal leaching.

Silicone Tally: How Hazardous Is the New Post-Teflon Rubberized Cookware. (2010, May 5). *Scientific American*, Retrieved from http://www.scientificamerican.com/article.cfm?id=earth-talk-silicone-tally

The article speaks of the health hazards associated with the usage of silicone bake ware and cooking utensils. The article notes that per the Food and Drug Administration and Canada's health agency, Health Canada, regulations have stated that food-grade silicone does not react with food or beverages or produce hazardous fumes as a long as items are used at recommended temperatures. Studies have concluded for the most part that silicone is non-toxic; however, definitive research has to be conducted in order to ascertain whether or not there are harmful elements associated with leaching into cooked foods.

Smith, E. (2007, September). Choosing Healthy Cookware. *The Educated Vegetable*, 2. Retrieved from http://www.educatedvegetable.com/newsletter_9_07.pdf

This article informs on the healthiest types of cookware and do not react with food or have a nominal amount of impact with food. Through careful analysis, Smith points out that certain factors should go into a cookware decision to ensure that there is minimal amount of leaching. To provide the reader with a better understanding of reactivity of cookware with food, Smith, discusses the extent to which certain types of materials and metals are important in cookware selection. Describing the best and optimum choices, readers can gather a significant amount of information from his recommendations and make the best decision accordingly.

Stellpflug, C. (2012, May 31). *Is your cookware killing you?* Retrieved February 18, 2013, from Natural News Network website: http://www.naturalnews.com/036029_cookware_non-stick_chemicals.html

Stellpflug discusses the influence of cookware leaching on our health. Comparing the various types of cookware, the article mentions early studies on blood toxicity levels and the many diseases and illnesses that individuals have been diagnosed with that scientists can point to leaching of cookware as a result. The article goes on to point out that high temperatures should be used to minimize risks of disease and disorders as a result of leaching of cookware.

Verissimo, M.I.S., Olivera, J.A.B.P., Gomes, M. T. (2006, October 25). Leaching of aluminum from cooking pans and food containers. Sensors and Actuators B: Chemical, 118(1-2), 92–197. Retrieved from http://www.sciencedirect.com/science/article/pii/S0925400506002899

While aluminum is not an essential element in the body, the toxicity levels of aluminum can be studied via commonly used cooking ware and utensils. Researchers can quantify the amount of metal leaching in certain recipes based on samples of cooked items with acidic additives placed on them. These samples are then understood through a variety of result mechanisms that help researchers better understand how toxic aluminum leaching is to the body. The article describes in detail the processes by which red cabbage samples were used with three different additives to

understand the effects of leaching in the body. The results were analyzed and gave scientists a more accurate view of the significance of aluminum leaching.