synthesized AgNPs had slightly less antibacterial activity than the borohydride synthesized AgNPs, we conclude that epicatechin synthesized nanosilver provides a safer alternative to traditional nanosilver in consumer and health applications.

PS 1584 Safety Assessment of Irganox 1076 Migration from Use in Food Contact Applications

A. P. Neal-Kluever and K. R. Hatwell. *Division of Food Contact Notifications, FDA, College Park, MD.*

This project is a post-market re-evaluation, initiated by the Office of Food Additive Safety (OFAS) to ensure that current exposures are accurately captured and the safety assessment considers all relevant toxicological information available since the time of premarket approval. The trigger for the postmarket evaluation of Irganox 1076 (stearyl 3,5-di-tert-butyl-4-hydroxyhydrocinnamate, CAS Reg. No. 2082-79-3) was an increase in submissions notifying for the food contact substance (FCS) in calendar year 2012. In order to assess the safety of Irganox 1076 from food contact applications, the US Food and Drug Administration (FDA) reviewed the available chemistry information on food contact applications, including the US regulatory status, uses, levels in food, and alternative approaches to calculate exposure. Upon completion of this in-depth market analysis, the cumulative dietary concentration (CDC) was determined to be 1.5 ppm (4.5 mg/p/d). A rigorous evaluation of the available toxicological information was performed, incorporating both the data submitted for the premarket notification and any new toxicology data published subsequently. A 2-year chronic rat feeding assay was selected as the critical study with a no-observed effect level (NOEL) of 64 mg/kg/d. This NOEL and the revised CDC provides a margin of exposure (MOE) of 850, which provides an adequate margin of safety (MOS) and remains protective of human health for the regulated uses.

PS 1585 Safety Assessment of R, S-Equol As a Dietary Supplement for Benign Prostatic Hyperplasia

E. D. Lephart. *PDBio, BYU, Provo, UT.* Sponsor: P. Damian.

Equol is a polyphenol, more specifically an isoflavonoid. Polyphenols are common micronutrients in the human diet and have been studies for their role in the prevention of cancer, cardiovascular, and age-related diseases. Several thousand molecules with a polyphenol structure exist in higher plants, and several hundred are found in edible plants. Equol was first discovered in the early 1980s in the urine of humans consuming soy foods (a key metabolite of daidzein). More recently, equol has been reported in fermented soybean foods at relatively high concentrations. Unlike other isoflavonoids (i.e., genistein or daidzein), equol has a chiral carbon; therefore it can occur as R- and S-isomers. R,S-Equol can be prepared by catalytic hydrogenation of daidzein to yield R/S-equol > 99 %. Equol is known for its anti-oxidant and anti-androgenic activities where both S- and R-equol specifically bind 5α-dihydrotestosterone (DHT) with high affinity, and thereby prevent it from binding the androgen receptor. Equol also binds to estrogen receptor beta & estrogen related receptor gamma that are beneficial for treating benign prostatic hyperplasia (BPH). The available toxicity data on R,S-equol and/or its isomers, combined with the widely disseminated knowledge concerning the normal human metabolism of daidzein to equol and the long history of consumption of equol from food provide a sufficient basis for assessment of the safety of R,S-Equol as a dietary supplement for BPH. Studies include absorption, distribution, metabolism & excretion (ADME)/toxicokinetic results, acute/subchronic toxicity, genotoxicity, reproductive & developmental toxicity findings. Also, clinical intervention results display safety, feasibility and efficacy of R,S-equol (6 mg twice/day) to treat middle-aged men with moderate to severe BPH symptoms. In conclusion, all data support the use of R,S-equol to be safe, well-tolerated and provide rapid beneficial therapy (within days to weeks) for BPH that can be used alone or in combination with current pharmaceuticals to improve prostate health.

PS 1586 Application of QSAR Models to Evaluate the Dermal Absorption of Cosmetic Ingredients

F. Liu[1], V. Tu[1], D. M. Frederick[1] and H. Frasch[2]. [1]*Revlon Research Center, Edison, NJ and* [2]*Health Effects Laboratory, NIOSH, Morgantown, WV.*

Systemic exposure to cosmetic ingredients is an important factor to take into account during human health safety evaluation of cosmetic products. The information on dermal absorption is critical in order to accurately evaluate the systemic exposure. In vitro methods have been widely applied to determine the dermal absorption of cosmetic ingredients. Also, QSAR models have been proposed and utilized to predict the dermal absorption of chemicals based on their chemical properties. To evaluate the performance of various QSAR models to predict the dermal absorption of cosmetic ingredients, an *in vitro* dermal absorption study was conducted using a porcine (pig) skin model. Diglycerin is a common humectant used in cosmetic products and was used as a model ingredient in the current study. The dermal absorption profile over a 24-hour exposure period was measured and the kinetic data were fitted to various diffusion models and a combined diffusion/binding model. The permeability coefficient (Kp) and lag time (τ) were estimated with these models. The Kp value was compared with those predicted from publically available QSARs models. The maximum flux values (Jmax) were calculated from the kp values. Based on the Jmax values, default % dose absorbed (Kroes et al., 2007) through the skin per 24 hours ranged from 40% to 80%. The dermal absorption determined from the actual data is generally in agreement with the QSAR model prediction. The current study supports the use of QSAR models to predict dermal absorption for safety assessment of cosmetic ingredients. We suggest that multiple prediction models for dermal absorption should be applied in the absence of experimental data and that the most conservative prediction should be used in systemic exposure assessment of cosmetic ingredients.

PS 1587 An Immature Human Reconstructed Epidermis Model to Assess Baby Personal Care Product Ranges

S. Catoire and H. Ficheux. *THOR Personal Care, Compiegne, France.*

The personal care market for children is rapidly expanding and increasingly requires a specific approach. Recent publications have re-evaluated the old notion that skin is fully matured at birth and have shown that baby skin differs in structure, function and composition from that of adults. In consequence, these qualitative and quantitative differences may facilitate the development of pathological conditions, such as topic dermatitis and irritant contact dermatitis. Therefore, the risk assessment of raw materials and finished products for baby cannot be extrapolated from human adult data but must be considered as a new approach with adapted models. In order to respect the morphology and properties of baby skin, especially the stratum corneum, an "immature" human reconstructed epidermis has been developed. It was used, at first, to assess skin irritation for a range of baby products. This new model is derived from a previously in-house developed human reconstructed epidermis model (VitroDerm).
During an internal validation, 67 infant formulations classified into 13 personal care product families (cleansing milk, shower gel, nappy cream, cleansing water, foam bath, liniment, wipes, protective stick, moisturising milk, sun cream, hydrastick, body cream, cold cream) were tested on both mature and immature epidermis. After 20h exposure on the mature model, none of the formulations reduced the percentage of cell viability to below 50% and were therefore classified as potentially non-irritant. However, 10 formulations decreased the cell viability to below 50% on immature epidermis, allowing the identification of potentially irritating formulations. A statistically significant difference (t test; $p<0.05$) was found when mature and immature models were compared as a whole. This difference became more relevant when stratified analysis was made between rinse off and leave on products. The improvement in the prediction of irritation with this new model allows a better risk assessment during the development of baby products and can be used as a tool to select the most appropriate ingredients during formulation.

PS 1588 Instant On-Site Glucose Measurements in Dogs

A. Makin, V. Golozoubova, J. Tovborg Jensen and J. Løgsted. *CiToxLAB, Lille Skensved, Denmark.*

In the pre-clinical studies where blood glucose levels are expected to be affected (e.g. tests of insulin and its analogues), instant on-site glucose measurement in small blood sample provides clear ethical and practical benefits. Methods for direct glucose measurements in whole blood are well established. However, the equipment is normally calibrated only for human use, and its suitability for glucose measurements in e.g. dog blood was therefore evaluated. We performed a study with the objective being to validate One Touch® UltraEasy® glucometer (the glucometer) for direct glucose measurements in dog blood as compared to standard laboratory measurement (Hitachi). Furthermore we evaluated the quality of blood samples collected from different sites (veins in the ear, foreleg or neck).
Samples measured using the glucometer were compared to samples analysed using the Hitachi. There was a linear relation between whole blood glucose measurements in a broad range of glucose levels (R2=0.93 for whole blood versus plasma or serum). Glucose levels corresponding to plasma glucose levels down to 3.4 mmol/L, can be measured successfully using the glucometer. Levels below that are outside the limit range, and would require plasma/serum glucose measurements.
Site of sample collection did not affect the results. However, ear sampling appeared to be more traumatic for the animals and is therefore not recommended for multiple sampling.

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