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Designing functional products for the management of pain and inflammation

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Pain can be defined as a state of discomfort, but is actually much more serious. Chronic pain is a debilitating condition that can incapacitate the suffer, greatly affects the quality of life, and significantly shortens lifespan. Pain, which is often associated with inflammation, is the most common reason for people to seek access to healthcare. However, pain management has only recently been recognized as a medical specialty and few physicians are adequately trained in pain management. Unfortunately, many effective pain medications also have serious adverse effects that can limit their usefulness. For example, Cyclooxygenase 2 (COX 2) inhibitors are often highly efficacious pain relievers, but their usefulness has been severely limited because of increased risk of heart attack and stroke (Vioxx, rofecoxib). The typical drug approach to therapeutics is to identify a target in a disease pathway and to find something to strongly block or inhibit the target enzyme or mediator of the pathway. This single drug for a single target approach is often effective but also is the source of the side effects. Using COX 2 as an example, the cyclooxygenase enzyme products are involved in many important physiological functions, and only a few mediate the pain response. Consequently, it is not surprising that a powerful inhibitor of cyclooxygenase would have side effects due to the inhibition of beneficial proudts of the enzyme. Typically, natural products do not exert as powerful of a pharmacological effect, however combinations of natural products can be designed to target multiple disease pathways that are related a condition of interest. In targeting pain and inflammation, curcumin can inhibit cyclooxygenase, as well and inflammatory cytokines such as TNFą and IL-1. Green tea and Kava Kava can act upon to opioid receptors to lessen the sensation of pain. Red pepper and ginger and possibly Boswellia may directly act to desensitize the TRPV1 pain receptor. Glucosamine and chondroitin act to both repair damage to painful joints and to decrease inflammation. Although none of these natural remedies act powerfully as their pharmaceutical counterparts, the combined effect of using more modest effects on multiple targets may provide substantial efficacy without risk of serious side effects.

Biography

James Daily has his expertise in Medicinal Plants and Natural Products from different sources, James Completed his PhD at the University of Tennessi. Currently he is working has a CEO at Daily Manufacturing Inc., USA. He has published number of papers in reputed journals and has been serving as an associate editor of J Medicinal Food

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