## Effects of Fatty Acid Salts and Spices on Dermatophagoides farinae

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Abstract : Dermatophagoides farinae is major mite allergens in indoors. D. farinae is often swarm over powder products (e.g. wheat flour), because it feeds on starch or protein that are included in them. Eating powder products which are mixed D.farinae causes various allergic symptoms. Therefore, the creation of food additive agents with high safety and control of mite effect is required. Fatty acid salts and spices are known that have pesticidal activities. This study describes the effects of fatty acid salts and spices against Dermatophagoides farinae. Materials and Methods: Potassium salts of 9 fatty acids (C4:0, C6:0, C8:0, C10:0, C12:0, C14:0, C18:1, C18:2, C18:3) were prepared by mixing the fatty acid with the appropriate amount of KOH solution to a concentration of 175 mM and pH 10.5. C12Cu and C12Zn were selected as other fatty acid salts. Cayenne pepper, habanero, Japanese pepper, mustard, jalapeno pepper, curry aroma and cinnamon were selected as spices. D. farina, have been cultured in laboratory. To rear the mites, double-soled dishes containing of sterilized food were put on the big plastic container (30.0 × 20.0 × 20.0cm) which had 100% ammonium nitrate solution in the bottom. Plastic container was placed on incubator at 25 °C and 64 % relative humidity (RH) under dark condition. Sterilized food composed of dried bonito flakes and dried yeast (Ebios), 1:1 by weight. The antiproliferative method, sample and medium culture were mixed in double-soled dish and kept at 25 °C and 64 % RH. Decrease rates were determined 1 week and 4 week after treatment under microscope. D. farina was considered to be dead if appendages did not move when prodded with a pin. Results and Conclusions: The results show that the fatty acids potassium showed no antiproliferative effects against D. farinae. On the other hand, Japanese pepper, mustard, curry aroma and cinnamon were effective to decrease propagative rate (over 80 %) after treatment for 1 week against D. farina. Japanese pepper, curry aroma and cinnamon were effective to decrease propagative rate (approximately 100 %) after treatment for 4 weeks against D. farina. Especially, Japanese pepper and cinnamon showed the fasted and the most consecutive antiproliferative effects. These results indicate that Japanese pepper and cinnamon have high antiproliferative effects against D. farina and suggest spices will be used as a food additive agent.

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