

## The study of producing functional rice by using SCF

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### Abstract

A rice is a staple food for Korean from the Neolithic era. A polished rice remove the husk of rice so eliminate 10% of weight. But 66% of nutrients located an embryo bud and 29% located rice bran.<sup>1)</sup> So polished rice that we ate has only 5% nutrients. In other words most nutrients remove for taste, only take carbohydrates. A brown rice has more nutrients than polished rice, but a taste is not smooth and lipid layer of surface make hard to cook.

Therefore functional rice to improve such nutrients unbalance is spotlighted of mass communication and many kinds of rices distributed a market. But that rices coated a functional materials on the outside or made by gene manipulation. That is different a taste or a form to eat untill now, the real conditions is unnoticed.

The goal of our experiment make functional rice, same taste and form, by impregnating EPA/DHA in rice using Super Critical Fluids, besides of coating outside and gene manipulation. Basic concept of Impregnation, solvent which has functional material, impregnate in solute, and only solvent through out from solute including functional material. Because SCF is good for solubility and diffusing power, it dissolve fatty acids easily and impregnate solute like as rice freely. So SCF is good solvent in impregnation. Because changing pressure is able to change solubility easily, SCF which saturate with functional materials pass rice and then pressure decrease. After all, functional materials remain in rice and SCF gas is through out rice.

### Reference

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