**Application of PVP as a Pharmaceutical Excipient to Avoid Interactions between Green Tea Components and Drugs**

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**Background and aims.** Green tea is consumed widely and is readily available as bottled drinks from vending machines in Japan. There are also many cases of people taking medicines with green tea. We have previously shown that the solubility of medicines with piperidine ring is significantly reduced due to hydrogen bonding with catechins in green tea, and that their taking with green tea may lead to a decrease in bioavailability. Polyvinylpyrrolidone (PVP) , a pharmaceutical additive, is used as a tablet disintegrant, but in the field of food engineering, it is used as a fining agent because of its hydrogen bonding ability with polyphenols. In this study, we investigated the effect of PVP on the interaction between catechins in green tea and drugs with piperidine ring.

**Materials and Methods.** Oi Ocha🄬 Green Tea (Ito En Co., Ltd.) was used as the green tea, and Aricept🄬 Dry Syrup 1% (Eisai Co., Ltd.) was used as a model drug including donepezil hydrochloride (DNP). PVP with an average molecular weight of 10,000 (Tokyo Chemical Industry Co., Ltd.) was also used. Twenty-five mg of DNP dry syrup was weighed in a centrifugation tube and PVP was added. Then, 1 mL of green tea was added and vortexed for 5min. Mixture was centrifuged and the supernatant was filtered. The concentration of DNP and catechins were measured.ext to begin immediately following the heading without additional line spacing.

**Results and Discussion.** DNP concentration increased depending on the added PVP amount. Furthermore, the catechin concentration was also significantly reduced compared to that without PVP. These results suggest that PVP interacts with the catechins in green tea, but catechins-PVP interaction occurs preferentially over catechins-DNP interaction, thereby improving the solubility of DNP in green tea.

**Conclusion.** It is possible that formulations containing PVP may be able to avoid affecting drug absorption even when taken with beverages containing polyphenols, such as green tea.

**Acknowledgement:** This work was supported by JSPS KAKENHI Grant Number JP23K06226