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Antibacterial effect of solvents fractions from *Alnus japonica* Steud against H. pylori and their cytotoxicity in various cell lines

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Alnus japonica Steud have long been used in the traditional medicine for gastric disorder, hepatitis and fatty liver in Korea. To elucidate the antibacterial activity of *Alnus japonica* Steus, the crude extract from its bark has been fractionated with solvents, and each fraction was assayed for antibacterial activity against Helicobacter pylori (H. pylori, ATCC43504) *in vitro*. In the present study, the activity of urease which released from H. pylori was measured for the determination of the *H. pylori* activity. Among four fractions of acetone extracts, the acetone fraction (OA), the acetone-dichloromethan fraction (OAD), the acetone-ethylacetate fraction (OAE) and the acetone-hexane (OAH), OAD has the highest antibacterial activity against H. pylori. OAE at 500μg/ml concentration was inhibited the urease activity more than 90%. The methanol extracts of *Alnus japonica* Steud has a weak anti-*H. pylori* activity, however the methanol-dichloromethan fraction (OMD) showed the strongest activity among the 7 different fractions with about 80% inhibition at 250μg/ml. From these results, the active components of *Alnus japonica* Steud for anti-H. pylori activity might exist mostly in OMD fraction and now we are purifying this fraction to obtain the active compound.

To observe the cytotoxicity of fractions from *Alnus japonica* Steud, various cancer cell lines such as NIH3T3, Vweo, HepG2, Hep3B, MNK-28 and MNK-45 cells were used in this study. Both of the methanol-hexane fraction and the methanol-hot water extract have over 200μg/ml of IC50 values in used cell lines. OMD showed the highest cytotoxicity

among the *Alnus japonica* Steud fractions used in this experiment expecially in NIH3T3 with 22.8μg/ml of IC50 values. Now we are studying its fractions for the inhibitory effect of H^+/K^+ ATPase activity.