Fractionation for activity evaluation

Desalinating prep HPLC fraction

Most Suitable !

(more convenient and faster)

Conveni-Prep M2

1) **Possible to concentrate and dry up directly as it is** for the sample obtained by fraction/purification with adsorbent.

2) **Desalination** of LC fractions can be performed **easily.**

3) **Draining using a vacuum pump** can ease fractionation and purification processes.

4) **By evaporating alcohol off (VVC method with suction agitation)** from beer sample, efficiency of fractionation and purification of hydrophobic components are increased.

BioChromato

Conveni-Prep M2

A Fractionation/Purification/Desalination system

【Recommended to those who want to: 】

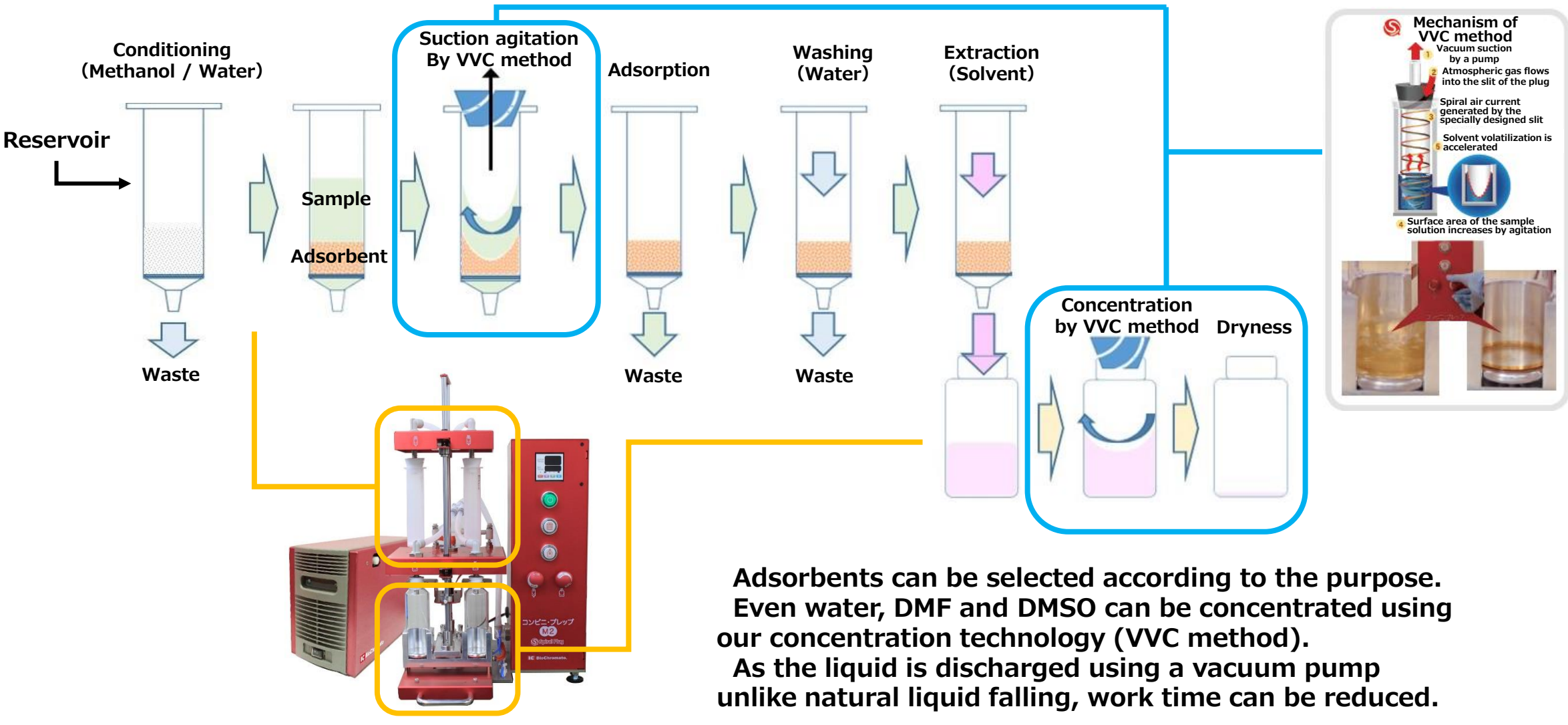
- ◆ Load much more sample amounts than on cartridge SPEs
- ◆ Concentrate and dry up SPE eluents directly
- ◆ Desalinate prep HPLC fraction easily
- ◆ Perform crude fractionation or crude purification at a lower cost than flash chromatography

【Applications】

1. Desalination of basic compound fraction (TFA salt)
2. Fractionation and desalination of hydrophobic components in beer
3. Desalination of glycyrrhizic acid fraction (containing phosphate and acetonitrile)

Conveni-Prep M2 is :

Possible to carry out a series of processes of fractionation, purification, desalination to concentration and dryness using an adsorbent by one unit



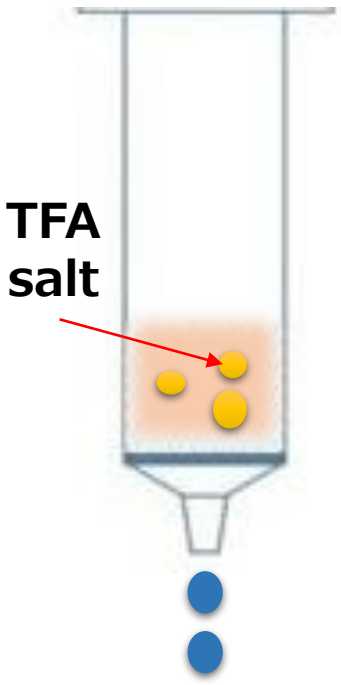
Adsorbents can be selected according to the purpose.
Even water, DMF and DMSO can be concentrated using our concentration technology (VVC method).
As the liquid is discharged using a vacuum pump unlike natural liquid falling, work time can be reduced.

Application ①
-Desalination of basic compound fraction (TFA acid salt)-
[Desalination after HPLC fractionation]

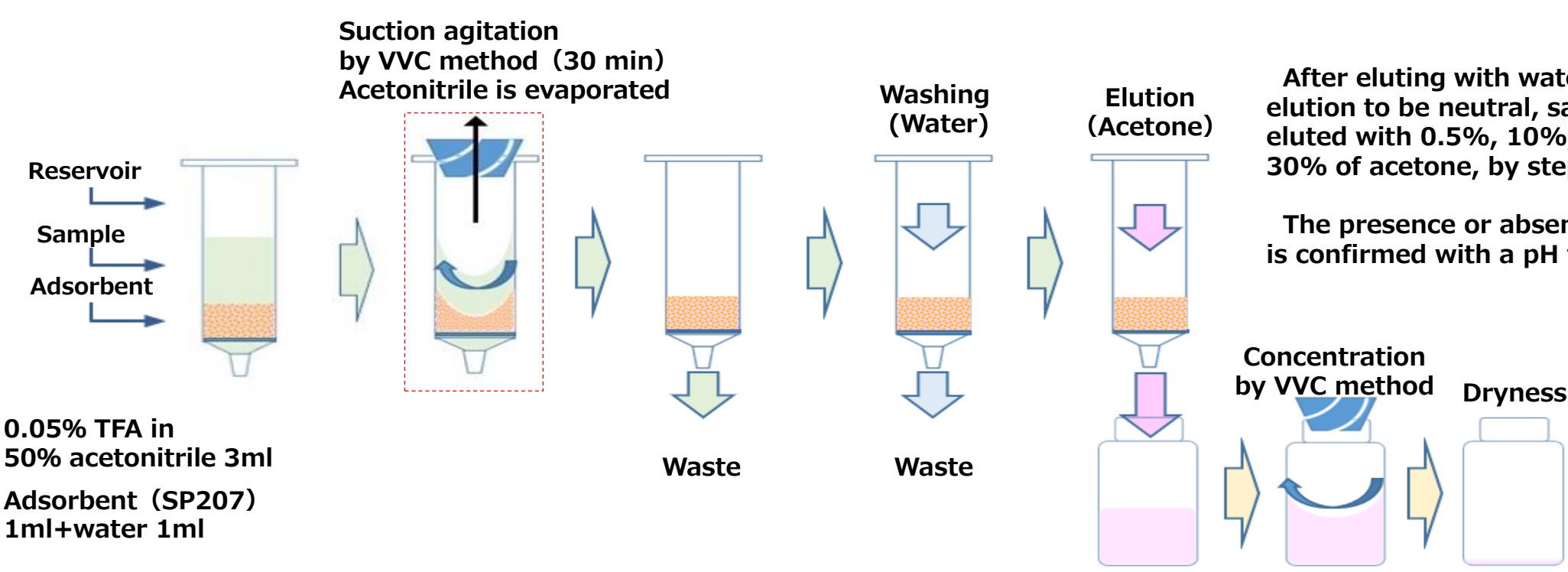
Purpose :
To remove the residual acidic salts and to recover the basic compounds in reversed-phase HPLC of peptide or proteins

Desalination of ion-bound TFA salts

Mobile phase used in preparative chemical synthesis
- **Acetonitrile / Formic acid**
- **Acetonitrile / TFA**



Problem:
Although it is a volatile salt, it remains even after freeze-drying.
Increased acid concentration during the evaporator concentration process causes compound decomposition.



0.05% TFA in 50% acetonitrile 3ml

Adsorbent（SP207） 1ml+water 1ml

After eluting with water until the elution to be neutral, sample is eluted with 0.5%, 10%, 20%, 30% of acetone, by steps.

The presence or absence of TFA is confirmed with a pH test paper.

Agitated

No changes after Water Fr 5

By use of the adsorbent with hydrophobic interaction, desalination, TFA removal and sample collection can be performed

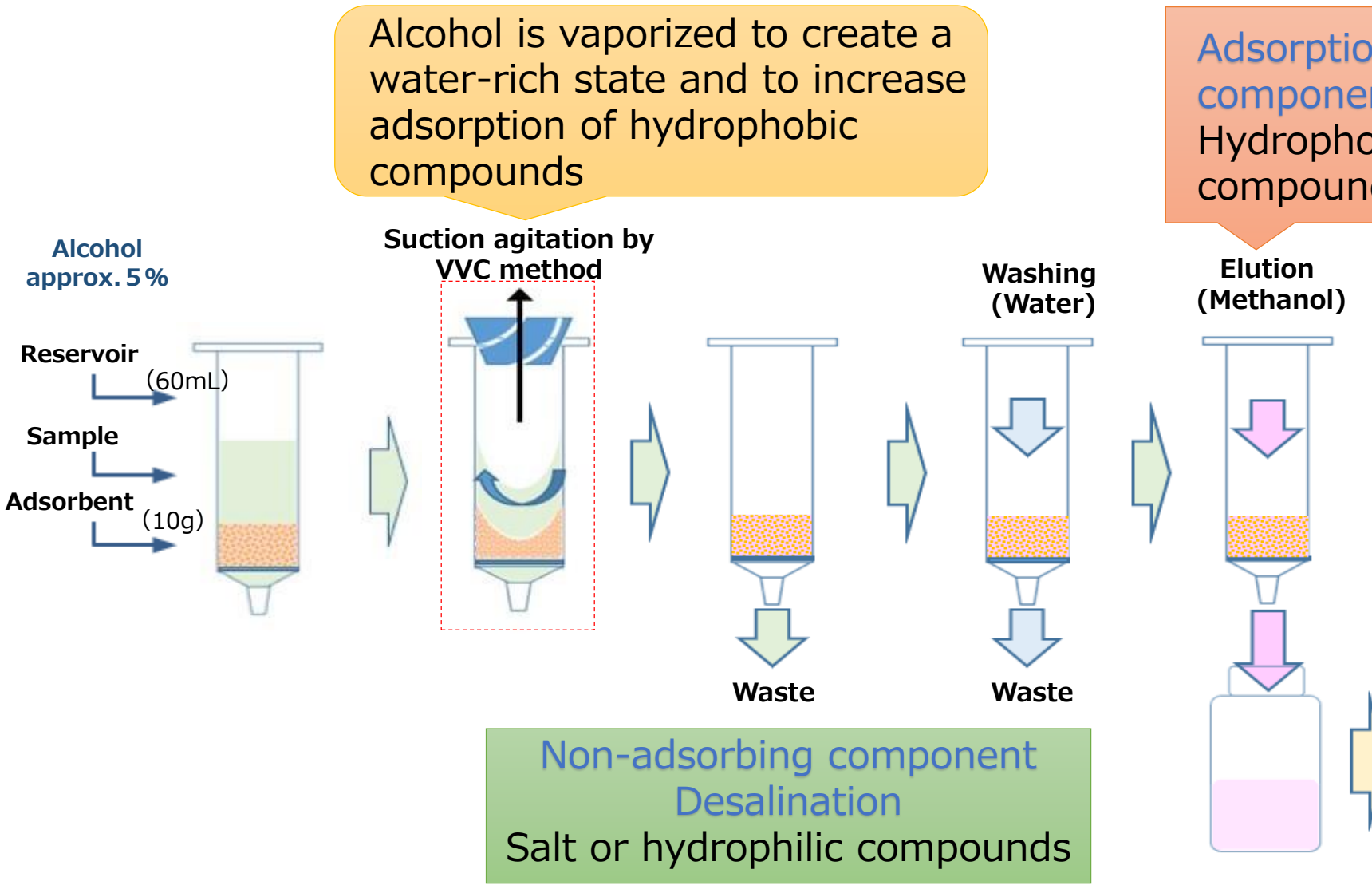
Application ②
-Fractionation and Desalination of hydrophobic components in beer-

Purpose :
Fractionation of hydrophobic components in alcohol-containing fermentation broth (beer) as it is

Problem :
Without pretreatment, preventing decreases in hydrophobic component recovery rate by alcohol

As it is
Crude Fraction
Crude Purification

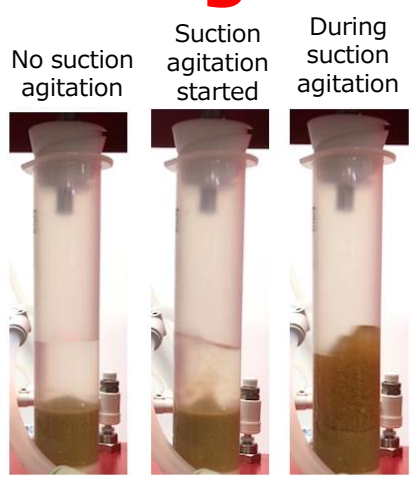
Alcohol is vaporized to create a water-rich state and to increase adsorption of hydrophobic compounds



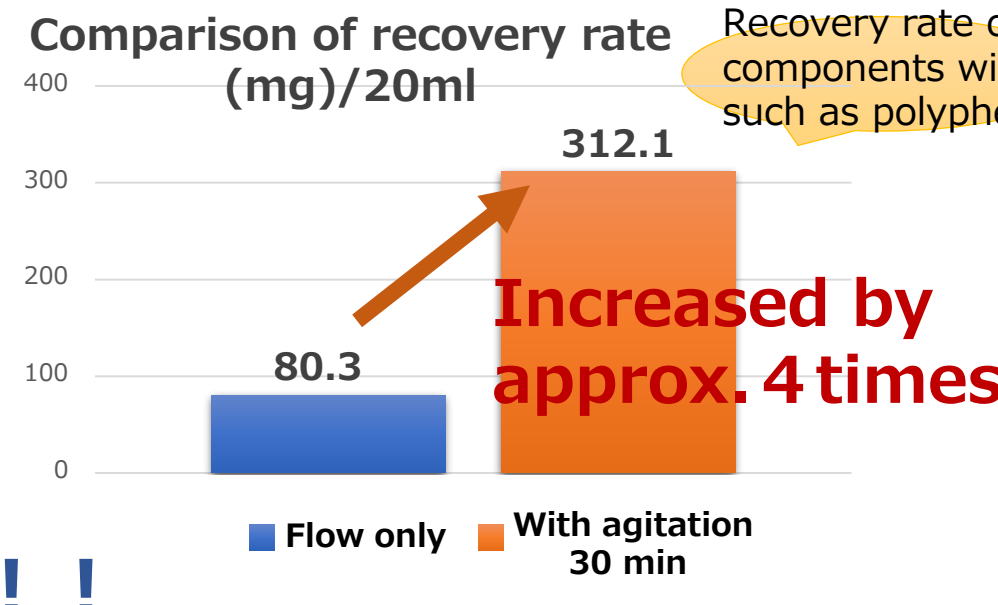
Adsorption components
Hydrophobic compounds

Non-adsorbing component
Desalination
Salt or hydrophilic compounds

Adsorbent 10g + Beer Sample 20mL added Evaluating
"With suction agitation " or "Flow as they are"



View of suction agitation

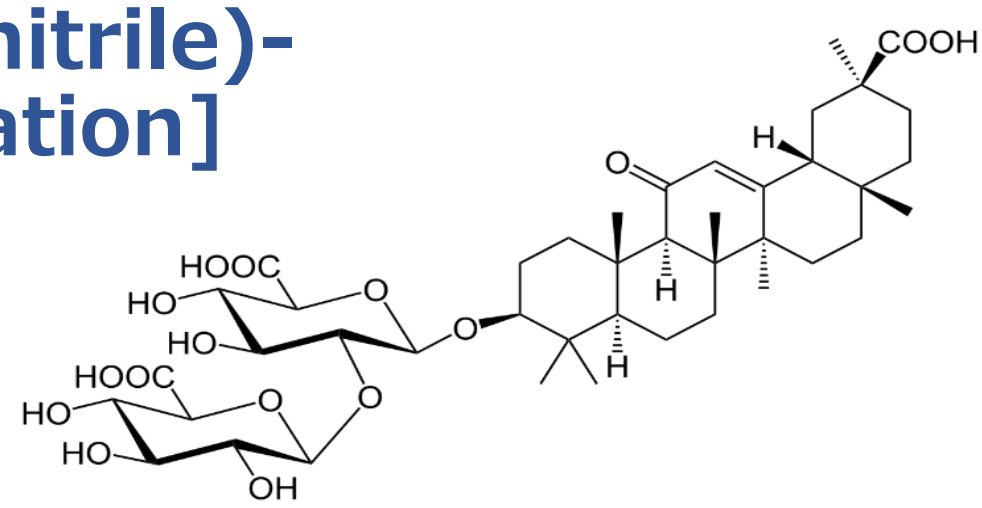


Recovery rate of the components with activities such as polyphenol

⇒ **Recovery rate increased by 4 times with suction agitation ! !**

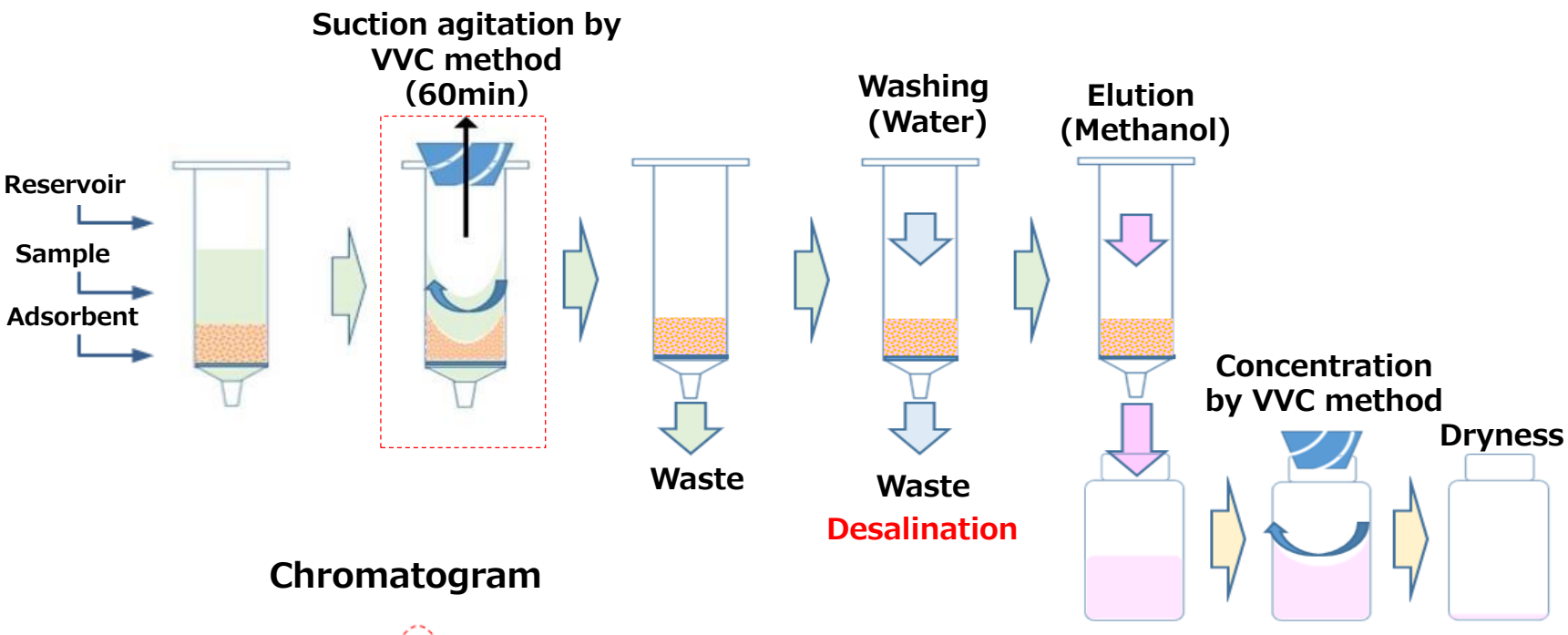
- **Evaluate even the non-adsorbed components passed through: such as organic acids of low molecular weight compounds**
- **Possible to perform pretreatment, fractionation, concentration, and dryness in series inside of the same equipment.**

Application ③
-Desalination of glycyrrhizic acid fraction (containing phosphate and acetonitrile)- [Desalination after HPLC fractionation]

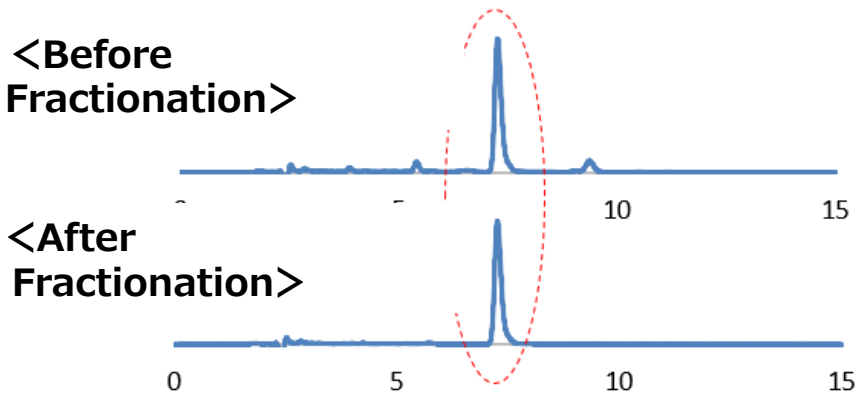


Purpose :
To desalinate / desolve of an HPLC glycyrrhizic acid fraction

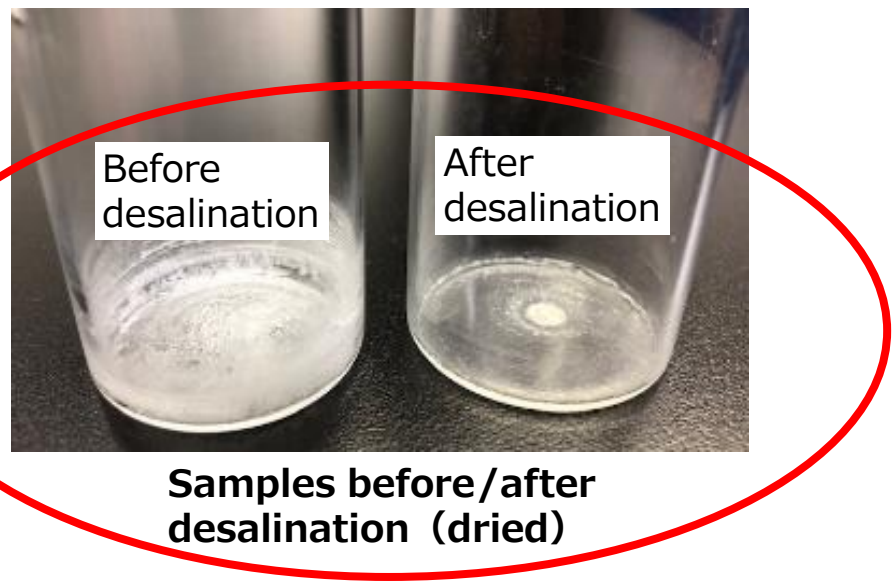
Problem :
The recovery rate during desalination is reduced due to the organic solvent in the sample solution.



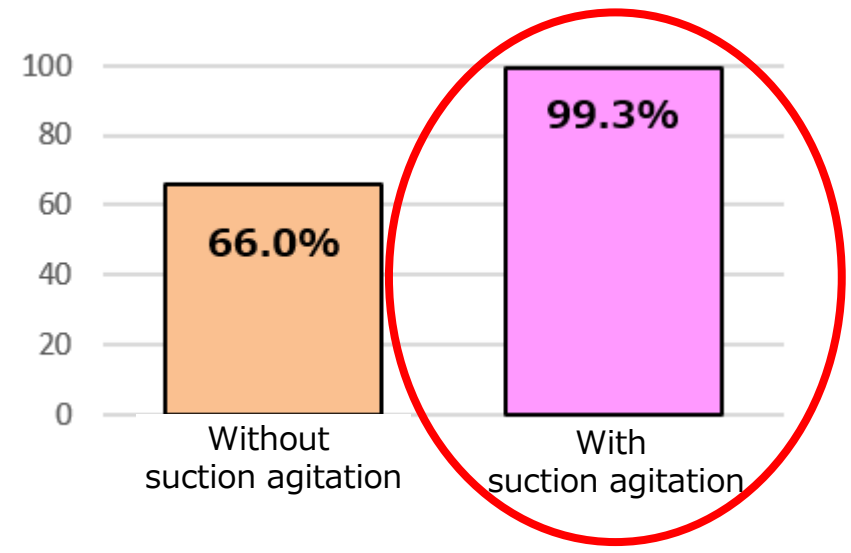
Chromatogram



Mobile Phase
50mM NaH_2PO_4 / Acetonitrile (60/40)



Samples before/after desalination (dried)



＊In the sample solution before desalting Recovery rate relative to peak area

Recovery rate after SPE

The recovery rate "without suction agitation " is "66.0%"
⇒ The organic solvent (acetonitrile) in sample prevents the target component from adsorbing to the adsorbent.

The recovery rate "with suction agitation" is "99.3%"
⇒ Organic solvent is vaporized by "suction agitation" and almost the whole amount of the target component is recovered by solid phase extraction

Result:
"Suction agitation" during desalination of samples containing organic solvents reduces sample loss. This is a useful technique when handling precious samples.