

AJ

vol. **273**

AQUA JOURNAL

JULY 2018
1000EN

Nature Aquarium
information magazine

[Special Feature]

ENJOY DOOA

Invitation to Riverbanks

ADA Review

System Terra 30 System Guide / The Way to Use a Wabi-Kusa Mat

Mizukusa FOCUS / Plant Art Studio

Amano's view 'My Mother's Notebook'



DOOA, an inspiring brand, helps you enjoy aquatic plants more freely. Minimal and easy, and designed as a platform allowing everyone to nurture plants indoors. Feel closer to nature, and bring beauty into your life.

ENJOY DOOA Invitation to Riverbanks

"Riparian" is the interface where terrestrial ecosystem comes in contact with aquatic ecosystem: a transition area between two ecosystems (Ecotone). It has been attracting attention in recent years as a rich natural environment in which various forms of life gather. Most of aquatic plants that grow naturally in riparian areas have amphibious characteristics, and they appear different above water and underwater. Taking advantage of their unique characteristics, ADA has introduced exciting ways to enjoy aquatic plants, both submersed and emersed, in a wide range of settings, such as Nature Biotope, open aquarium, Wabi-Kusa and others. Creating aqua terrariums with DOOA is the latest form. You can simply try and get a feeling of the riparian world.

©AQUA DESIGN AMANO

AQUA JOURNAL vol. 273 CONTENTS

02	ENJOY DOOA – Invitation to Riverbanks
04	ENJOY DOOA
08	ADA Review "System Terra 30 System Guide"
12	ENJOY DOOA
16	ADA Review "The Way to Use a Wabi-Kusa Mat"
20	Mizukusa FOCUS #08 BIO "Mizukusa no Mori" Analysis Plant Art Studio #08
22	Amano's view #08 "My Mother's Notebook"

An easy-to-maintain aqua terrarium with aquatic plants well suited for emersed growth

Wabi-Kusa Mat
Christmas Moss
for the wall



Wabi-Kusa Mat
Vesicularia montagnei

For Wabi-Kusa Mat that becomes the foundation of the wall, we selected Christmas Moss that is suited for emersed growth. This aquatic moss is relatively resistant to dry conditions.

Layout style
requiring
no plants underwater,
no CO₂ injection



Go creative
by adding
BIO MIZUKUSA
NO MORI
to the wall mats.

BIO MIZUKUSA NO MORI offers a wide variety of plants, including the species suitable for emersed growth. Even non-epiphytic stem plants can be planted by making holes on Wabi-Kusa Mat.



Wabi-Kusa Mat
Vesicularia montagnei



BIO MIZUKUSA NO MORI

System Terra 30 comes with six pieces of Wabi-Kusa Mat without plants. Wabi-Kusa Mat with pre-rooted mosses or aquatic plants are also available on the market. In this layout, Wabi-Kusa Mat *Vesicularia montagnei* (Christmas Moss), relatively resistant to dry conditions, is selected to cover the surface of the wall section. Adding another twist to the Wabi-Kusa Mat, you can grow aquatic plants, selected from the BIO MIZUKUSA NO MORI series, on the mats. In addition, choosing aquatic plants that grow well above water makes the wall maintenance easier.



No CO₂ injection is required since no aquatic plants are planted underwater. A combination of Unzan stones with Wabi-Kusa, placed in the carved pockets, and Tropical River Sand offers a natural feel.

- DOOA SOL STAND G
- DOOA SOL STAND G Mounting piece
- DOOA SYSTEM TERRA 30
- DOOA Glass Cover for System Terra 30
- Cube Garden Hook 5mm
- DOOA MISTFLOW
- DOOA BASE STAND 35
- NA Control Timer II
- DOOA TROPICAL RIVER SAND
- DOOA WABI-KUSA MIST

Shooting date:
April 4th, 2018 (ADA)
Creator: ADA
©AQUA DESIGN AMANO

- [Aquatic Plants]
- Wabi-Kusa Mat *Vesicularia montagnei* (Christmas Moss)
- BIO *Hydrocotyle tripartita*
- BIO *Pogostemon helferi*
- BIO *Hydrocotyle verticillata*
- BIO *Utricularia graminifolia*
- BIO *Anubias barteri* var. nana 'Petite'
- BIO *Anubias barteri* var. 'Coffeefolia'
- BIO *Cryptocoryne wendtii* 'Green'
- Wabi-Kusa *Ranunculus inundatus*
- Anubias barteri* var. nana 'Petite'
- Bolbitis heteroclita*
- Hygrophila pinnatifida*
- [Fish]
- Danio rerio*
- Sicyopterus lagocephalus*
- Caridina multidentata*

DOOA, an inspiring brand, helps you enjoy aquatic plants more freely. Minimal and easy, and designed as a platform allowing everyone to nurture plants indoors. Feel closer to nature, and bring beauty into your life.

Taking advantage of Wabi-Kusa, create an aqua terrarium with various plants.



This layout showcases two different ecosystems: the terrestrial environment where stem plants grow vigorously and the aquatic environment where shade-loving plants grow slowly. From Wabi-Kusa Stemmed Plants MIX placed on the wall section, more than 5 stem plant species, such as *Rotala*, *Hygrophila* and *Ludwigia*, grow while both emerged and submersed leaves develop from Wabi-Kusa Karen placed on the bottom of Branch Wood. Using various types of aquatic plants, you can create a natural atmosphere.

Place ferns and other shade plants in shady areas.



In addition to Wabi-Kusa Stemmed Plants MIX, Wabi-Kusa Mat with round-leaf *Microsorium* and *Bucephalandra* was placed in the shaded area.

Placing just a piece of Wabi-Kusa Stemmed Plants MIX can add a lively vibe to the layout. Stem plants grow quickly, so frequent trimming is necessary to maintain healthy plants for a long period of time.



Wabi-Kusa Stemmed Plants MIX 90

- DOOA SOL STAND G
- DOOA SOL STAND G Mounting piece
- DOOA SYSTEM TERRA 30
- DOOA Glass Cover for System Terra 30
- Cube Garden Hook 5mm
- DOOA MISTFLOW
- DOOA BASE STAND 35
- CO₂ FOREST BOTTLE
- CO₂ System 74-YA/Ver.2
- Clear Stand for CO₂ System 74
- DOOA CO₂ MINI COUNTER
- DOOA CO₂ MINI DIFFUSER J Ø10
- NA Control Timer II
- DOOA TROPICAL RIVER SOIL
- DOOA WABI-KUSA MIST

[Aquatic Plants]
Microsorium sp. (Round leaves)
Hygrophila pinnatifida
Bucephalandra sp.
Wabi-Kusa Stemmed Plants MIX
Wabi-Kusa Karen
BIO *Cryptocoryne spiralis* "Tiger"
BIO *Littorella uniflora*
Wabi-Kusa Mat *Taxiphyllum barbieri*
Vesicularia sp.
[Fish]
Trichopsis pumila
Crossocheilus oblongus
Otocinclus sp.
Caridina multidentata
Shooting date:
October 25th, 2017 (ADA)
Creation & Text by Kota Iwahori
©AQUA DESIGN AMANO

The reddish-brown soil evokes a tropical riverbank.



Tropical River Soil

Tropical River Soil was used to depict the scenery of a tropical riverbank. The soil contains only a moderate amount of nutrients. Add Bottom Plus to the soil to supply nutrients.

Use Wabi-Kusa as an accent piece of the living wall.



The compact aquarium is packed with ADA's know-how of maintenance of aqua terrarium.

ADA has been working on creating a living, green wall with Wabi-Kusa for the past few years. The results of our efforts are demonstrated in DOOA Wabi-Kusa Walls and “Great Nature Aquatic Wall.” The know-how of this work is concentrated into the System Terra 30 in the most compact form. A living green wall covered with mosses and emersed grown aquatic plants can be produced simply by installing Wabi-Kusa and Wabi-Kusa Mats, and you can enjoy a full-fledged aqua terrarium by arranging stones, driftwood, and Wabi-Kusa in the underwater section. Growing plants on the wall was made easier with the introduction of ultrasonic mist-maker, Mistflow. This article explains the characteristic construction of the System Terra 30 and how its accessories are set up.

- DOOA SOL STAND G
- DOOA SOL STAND G Mounting piece
- DOOA SYSTEM TERRA 30
- DOOA Glass Cover for System Terra 30
- Cube Garden Hook 5mm
- DOOA MISTFLOW
- DOOA BASE STAND 35
- CO₂ Forest Bottle
- CO₂ System 74-YA/Ver.2
- Clear Stand for CO₂ System 74
- DOOA CO₂ MINI COUNTER
- DOOA CO₂ MINI DIFFUSER J Ø10
- NA Control Timer II
- DOOA TROPICAL RIVER SOIL
- DOOA WABI-KUSA MIST

- [Aquatic Plants]
- Wabi-Kusa *Taxiphyllum* sp. “Peacock Moss”
- Bolbitis heteroclite*
- Hygrophila pinnatifida*
- Anubias barteri* var. nana “Petite”
- Anubias barteri* “coffeefolia”
- Anubias minima*
- Lagenandra keralensis*
- [Fish]
- Puntius titteya*

Shoot on April 12th, 2018 (ADA)
Creation & Text by Kota Iwahori
©AQUA DESIGN AMANO



DOOA SYSTEM GUIDE

System Terra 30 System Guide



GUIDE 1

The construction of System Terra 30 that is perfect for an aqua terrarium

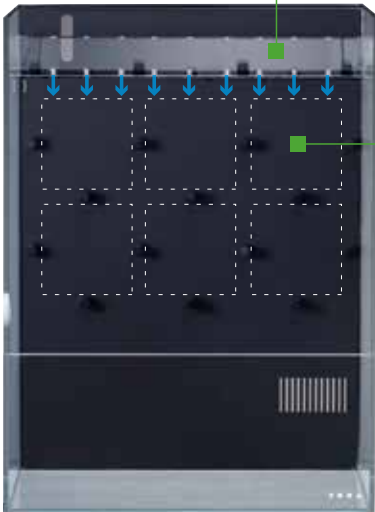


Cascade System that supplies water on the wall
The Cascade System at the upper part of the System Terra 30 supplies water evenly across the wall.



The flow rate controller maintains the optimum water surface level.
The flow rate controller changes the flow rate of the water from the pump in the filter section and maintains the optimum water level in the cascade spillway.

Front view

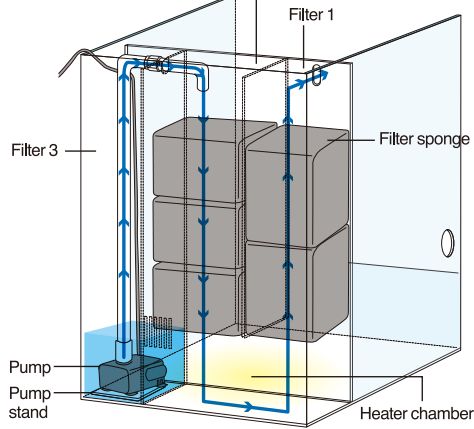


Wabi-Kusa Mat for creating a living green wall easily
A living, green wall can easily be created by securing a Wabi-Kusa Mat to which mosses and epiphytic plants can be attached or a Wabi-Kusa on grid pins. The System Terra 30 comes with six Wabi-Kusa Mats (without plants.)

Side View



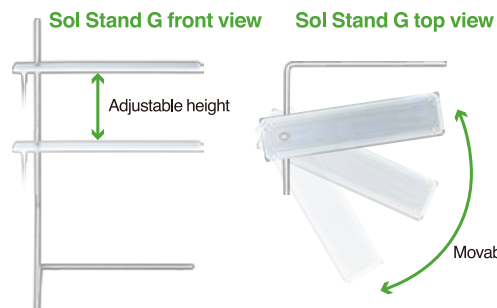
Water path



Integrated aquarium system
An integrated aquarium system with adequate filter capacity is excellent for keeping fish and shrimp in the underwater section. There is a heater chamber under the filter section.

GUIDE 2

Optimized lighting system



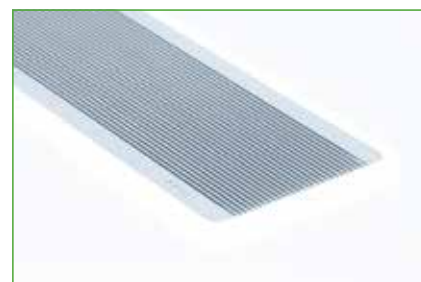
The slim lighting unit is fully adjustable.

The lighting unit is adjustable vertically and horizontally. Light intensity can be adjusted easily based on the type and the condition of a plant.



A touch sensor switch that does not detract from the design

The lighting unit is equipped with a touch sensor switch so as not to detract from the attractive design of the unit. The cord attaches with a magnetic connector plug.



Lighting unit with a superior performance

The lighting unit is equipped with the same green LED chips as those in Aquasky G. The slim fixture with an aluminum and acrylic hybrid construction delivers 1200 to 1500 lumens of light at 18W.

GUIDE 3

The CO₂ injection device fits perfectly through the side opening.



CO₂ injection fosters the healthy growth of aquatic plants.

The CO₂ Mini Diffuser fits perfectly through the opening of the System Terra 30 side panel. Aquatic plants in the underwater section grow well with CO₂ injection.



GUIDE 4

Mistflow prevents drying and enhances a natural appearance.



Install the Mistflow on the top of the filtration section.

The small mist-maker, Mistflow, can be installed simply at the top part of the filtration section. It can be added later depending on the condition of the plants on the wall.



Adjust the water level with the flow rate controller.

Turn the flow rate controller so that the water surface level is halfway up the cascade spillway. Mist does not flow down well if the water surface level is too high.



A mist flows down from the spillway.

When the Mistflow is started after installing the filter lid, generated mist flows down from the cascade spillway like a waterfall.



Designed for safety with a water level sensor

Mistflow generates mist best when placed on the installation surface (filtration sponge) at approximately 8 cm from the top of the filtration section where its water level sensor is submerged by approximately 1 cm.



The glass cover stabilizes the airflow.

The mist does not flow downward well if there is a disturbance in the airflow caused by a nearby fan or air conditioner. If this occurs, a glass cover for the System Terra 30 will stabilize the airflow.

Cube Garden Hook 5mm for System Terra 30 Glass Cover





DOOA, an inspiring brand, helps you enjoy aquatic plants more freely. Minimal and easy, and designed as a platform allowing everyone to nurture plants indoors. Feel closer to nature, and bring beauty into your life.

Japanese native plants and Medaka
(Japanese killifish) —
The refreshing atmosphere created
in System Terra 30



Native plants
that love a wetland
can be grown
on the wall surface.



Japanese native plants develop roots and grow well on a Wabi-Kusa Mat. *Saxifraga stolonifera* that actively sends out runners is excellent for a living wall.

Moss Rock and
cosmetic sand
enhanced the cool,
refreshing
impression.



Moss Rock and Tropical River Sand go well together and create a cool, refreshing layout by simply placing a Moss Rock on the sand. The wide water surface area is great for viewing Medaka from above the water surface.



Tropical River Sand



Moss Rock

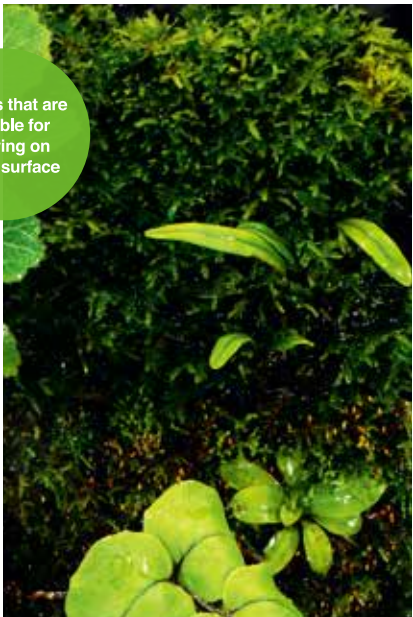
Japanese native plants, such as *Plagiomnium acutum*, *Fissidens gymnogynus* Besch, water-loving *Saxifraga stolonifera* and ferns, were attached to System Terra 30's Wabi-Kusa Mats to produce an impression of a Japanese mountainside scenery dripping with spring water. Although strong lighting can raise the temperature and scorch leaves in such a layout planted primarily with mosses and ferns, the lighting unit of the height-adjustable Sol Stand G can be raised to avoid this problem.

- DOOA SOL STAND G
- DOOA SOL STAND G Mounting piece
- DOOA SYSTEM TERRA 30
- DOOA Glass Cover for System Terra 30
- Cube Garden Hook 5mm
- DOOA MISTFLOW
- DOOA BASE STAND 35
- CO₂ Forest Bottle
- CO₂ System 74-YA/Ver.2
- Clear Stand for CO₂ System 74
- DOOA CO₂ MINI COUNTER
- DOOA CO₂ MINI DIFFUSER J Ø10
- NA Control Timer II
- DOOA TROPICAL RIVER SAND
- DOOA WABI-KUSA MIST

[Aquatic Plants]
Saxifraga stolonifera
Cyrtomium macrophyllum
Lepisorus onoei
Heloniopsis orientalis
Carex curvicolis
Plagiomnium acutum
Fissidens gymnogynus Besch.
Moss Rock
[Fish]
Oryzias latipes var.
Caridina multidentata

Shoot on April 4th, 2018 (ADA)
Creation & Text by
Kota Iwahori
©AQUA DESIGN AMANO

Mosses that are
suitable for
growing on
a wall surface



Water-loving terrestrial mosses, *Plagiomnium acutum* and *Fissidens gymnogynus* Besch, were used here. Out of a living Wabi-Kusa Mat lineup, Christmas Moss and Peacock Moss are especially great for growing on the wall surface.



DOOA, an inspiring brand, helps you enjoy aquatic plants more freely. Minimal and easy, and designed as a platform allowing everyone to nurture plants indoors. Feel closer to nature, and bring beauty into your life.

An Aqua Terrarium that suggests the flow of water using plants in *Hydrocotyle* family

This layout was created by stacking Moss Rocks in the left and right sides of the aquarium to obscure the boundary between the Wabi-Kusa Wall and the water surface. Driftwood branches were arranged on top of the rocks. Willow Moss, *Utricularia graminifolia*, and *Hydrocotyle* were attached to the driftwood and the Willow Moss at the top was immersed in the cascade section to direct the water over the driftwood. Doing so made the surface of the driftwood constantly wet and enabled the Willow Moss to grow well above the water.

An example of combining the DOOA Wabi-Kusa Wall and ADA Nature Aquarium Cube Garden tank. The advantage of this setup is that plants on the wall surface do not dry out as fast.



A creative idea to direct water from the cascade to the driftwood



Aquatic plants under water grows well with a CO₂ injection.

Although Willow Moss is sensitive to drying, it grows well above water if water is directed to it from the cascade section. When the Willow Moss holds moisture, other plants tend to grow better as well.

Micranthemum sp. grows well under water with CO₂ injection. The planting under water was kept simple since the area above the water was elaborately produced.



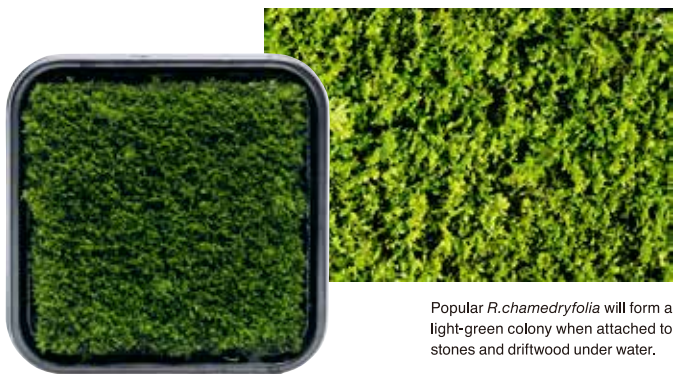
- AQUASKY G601
- Mirror Unit
- Cube Garden W60xD30xH36 (cm)
- DOOA WABI-KUSA Wall 60
- Wood Cabinet 60 (W60xD30xH70cm) Off-White
- DOOA CO₂ MINI COUNTER
- DOOA CO₂ MINI DIFFUSER Ø15
- Super Jet Filter ES-150
- DOOA TERRA Inflow Pipe (Ø13)
- DOOA Suction cup clip
- NA Control Timer II

- [Aquatic Plants]
- Wabi-Kusa Mat *Taxiphyllum barbieri* (Willow Moss)
 - BIO *Hydrocotyle verticillata*
 - BIO *Hydrocotyle tripartita*
 - BIO *Anubias barteri* var. nana
 - BIO *Utricularia graminifolia*
 - BIO *Riccia fluitans*
 - Wabi-Kusa *Micranthemum* sp. 50
 - Moss Rock
- [Fish]
- Pseudoplatys annulatus*
 - Lepidarchus adonis*
 - Otocinclus* sp.
 - Caridina multidentata*

Shoot on March 28th, 2018 (ADA)
Creation & Text by Yusuke Homma
©AQUA DESIGN AMANO

The latest collection of Wabi-Kusa Mats Available in many types and for various uses

A living Wabi-Kusa Mat started out with a single type of moss, such as *Taxiphyllum barbieri* (Willow Moss), attached to the mat. Epiphytic plants, such as ferns and Anubias, were later added to the collection, and a wide variety of Wabi-Kusa Mats are now available. Well-developed Wabi-Kusa Mats can be used for a Wabi-Kusa Wall and System Terra 30 as well as plant sources for a traditional layout by removing the plants from the mat.



Wabi-Kusa Mat
Riccardia chamedryfolia

Popular *R.chamedryfolia* will form a light-green colony when attached to stones and driftwood under water.



Wabi-Kusa Mat
Taxiphyllum barbieri

The most popular moss for an aquarium layout. It is great for creating a natural appearance. It is essential for a layout with driftwood.



Wabi-Kusa Mat
Microsorium pteropus 'Trident'

This well-developed plant with finely-divided leaves is quite eye-catching. Wabi-Kusa Mat promotes healthy plant conditions.



Wabi-Kusa Mat
Anubias barteri var. *nana* 'Petite'

A dwarf variety of *Anubias nana*. The sciophytic plant is easy to grow. It can be used in a wide variety of layouts regardless of the aquarium size.



Wabi-Kusa Mat
Bucephalandra sp. 'Sintang'

This variety develops rather bright-green leaves for a *Bucephalandra*. Tiny, silver speckles on the leaves sparkle beautifully when viewed up close.



Wabi-Kusa Mat
Bolbitis heudelotii

A standard fern in an aquatic plant layout. It goes well with the driftwood. The appearance of its translucent fronds with oxygen bubbles is exceptionally beautiful.

Under water

For use in an aquatic plant layout in combination with lava stones



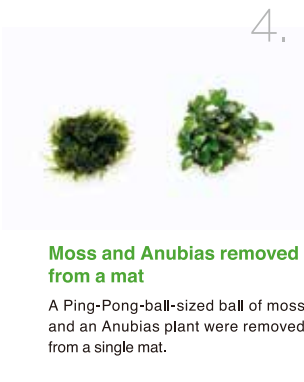
Select a Wabi-Kusa Mat.
Wabi-Kusa Mat *Anubias barteri* var. *nana* 'Petite' was selected here.



Remove the Anubias from the mat.
An Anubias that was grown in the center of the Wabi-Kusa Mat was removed.



Remove Willow Moss from the mat.
Willow Moss was plucked off of the Wabi-Kusa Mat and the thread was removed.



Moss and Anubias removed from a mat

A Ping-Pong-ball-sized ball of moss and an Anubias plant were removed from a single mat.



Secure the Anubias to a lava stone.
The Anubias plant was divided into smaller bunches and secured to lava stones with strips of Wood Tight.



Wrap Willow Moss around lava stones.
Inconspicuous Moss Cotton is perfect for wrapping Willow Moss.

The amount of prepared layout materials

The layout materials that were prepared from a single mat are now ready to be placed in an aquarium.

The living Wabi-Kusa Mat that was introduced in this feature article is the new type of aquatic plant product. This is the latest product following the introduction of Wabi-Kusa and BIO MIZUKUSA NO MORI. It can be used for an aquatic plant layout as well as the Wabi-kusa Wall and System Terra 30.



WABI-KUSA MAT
The Way to Use a Wabi-Kusa Mat



Wabi-Kusa Mat
Hygrophila pinnatifida

Although it looks like a fern because of its finely pinnate leaves, it is not sciophytic and requires adequately high light.



Wabi-Kusa Mat
Lagenandra meeboldii

It is originally from Southwest India and a related species of *Cryptocoryne*. Although it is a terrestrial plant, it can be rooted on the Wabi-Kusa Mat and grown on the Wall surface.



Wabi-Kusa Mat
Anubias barteri var. 'Coffeefolia'

The deep green Anubias plant with wavy leaves creates a uniquely wild atmosphere. New leaves are reddish and look quite striking in a layout.



Wabi-Kusa Mat
Anubias barteri var. 'Round Leaf'

A cute Anubias plant with round leaves. Its distinctly-shaped leaves would create an interesting contrast to stem plants when grown on the Wall.



Wabi-Kusa Mat
Taxiphyllum sp. 'Peacock Moss'

The moss forms triangular fronds underwater. It is somewhat difficult to grow perfectly-shaped leaves. It is great for growing on the wall surface.



Wabi-Kusa Mat
Vesicularia montagnei
'Christmas Moss'

The moss develops a fluffy, voluminous appearance underwater. Since it prefers high light, it is well-suited for growing on a bright wall surface.

Above water

For an aquatic plant layout in combination with driftwood



Select the Wabi-Kusa Mat.
Wabi-Kusa Mat *Microsorium pteropus* 'Trident' was selected.



Remove Willow Moss from the mat.
Willow Moss was plucked off of the Wabi-Kusa Mat and the thread was removed.



Remove *Microsorium* from the mat.
The *Microsorium* was removed from the center of the mat.



Moss and *Microsorium* removed from a mat
A Ping-Pong ball-sized ball of moss and *Microsorium* were removed from a single mat.



Wrap Willow Moss over driftwood.
Spread the moss thinly over the driftwood and secure it with Moss Cotton.



Driftwood wrapped with moss
Wrapping moss on parts of the driftwood surface enhances the natural appearance.



7. Secure the *Microsorium* to the driftwood.
The *Microsorium* was divided into two pieces and secured to the driftwood with strips of Wood Tight.



Prepared driftwood branch
This size of driftwood branch can be prepared with materials from a single mat.

Nowadays, you may encounter many aquatic plants prepared in plastic cups in aquarium stores. In this issue, we feature ADA's tissue-culture plants, BIO "Mizukusa no Mori" and introduce the secret behind their popularity.

BIO "Mizukusa no Mori" Analysis

BIO "Mizukusa no Mori" now has over 50 variations in the lineup, including undergrowth, stemmed plants, *Cryptocoryne*, and mosses. But do you know how much volume of plants each plastic cup contains? We removed plants from their cups, and counted how many stemmed plants, or *Cryptocoryne* are contained in one plastic cup. First, *Rotala* sp. 'Hra' and *R.* sp. 'Nanjenshan'; *Rotala* sp. is one of the most densely grown plants in the stemmed plant lineup. Their shoots thrive in the cups. A cup

contained about 15 pieces of plants, 5-6 shoots each, quite enough to cover many areas inside an aquarium. Then we looked at *Cryptocoryne wendtii* 'Green' and *C. wendtii* 'Tropica'. They both contained 6 rhizomes, and each had 3 - 4 shoots. The rhizomes were not so big, but there were many of them in a cup. BIO "Mizukusa no Mori" offers easy-to-plant tissue culture plants, densely packed together in plastic cups. Please try them out at your local aquarium store!



BIO *Rotala* sp. 'Nanjenshan'
Rotala with slender leaves and orange colored apical buds. A sturdy, easy-to-care-for stem plant.



BIO *Rotala* sp. 'Hra'
This plant displays a bright red color, and is often used in Nature Aquarium layouts.



BIO *Cryptocoryne wendtii* 'Tropica'
A bronze color *Cryptocoryne* with unique hammered leaves.



BIO *Cryptocoryne wendtii* 'Green'
A popular variety of *Cryptocoryne wendtii* with green leaves, that is relatively easy to take care of.



Plant Art Studio



Hydrocotyle verticillata

08

Looking at a familiar plant with a simple shift of perspective, the world looks entirely different. Round leaves against the sky give a feeling of early summer freshness.

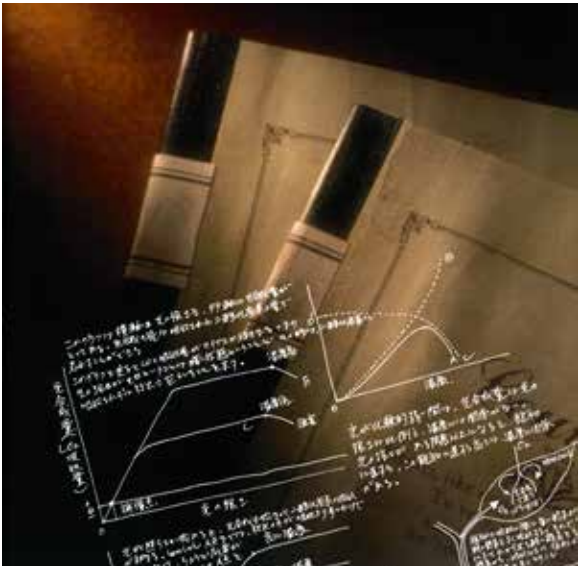
Photo / Yusuke Homma



This is the essay Takashi Amano wrote for his planted aquarium collection book *Glass no Naka no Daishizen (Nature Aquarium World)* published in 1992. It gives the opportunity to understand Amano's unique views of nature and his experience.

[Amano's view]
Nature Aquarium World

My Mother's Notebook
Photo&Text/ Takashi Amano



My mother died at age 62 of a blood clot in her brain. Her life was one of constant work and little play, but she truly loved the work of raising produce on the family farm. She was proud of her eggplants and tomatoes, and even as a child I could tell that hers were better than most. Like most farmers in those days she didn't go to school, but she observed the crops every day and recorded her observations in a college notebook. In those days, if there was a dry spell or heavy rains, there would always be losses from disease or stunted growth, but we never failed to reap a decent harvest at our farm. The neighbors would come around asking for my mother's "secret," but they always went home disappointed. Oh, she tried to teach them, but she couldn't explain in an afternoon what it took years of patience to understand. Success only needs the awareness of things that other people take for granted. My mother realized this. In time, I did my own research on aquatic plants, and learned some "secrets" myself. I think that it's nearly impossible for me to explain them all. I could explain 90% with scientific theory, but the remaining 10% is based on many years of experience and is a kind of intuition that I relay on to help me make decisions under ever-changing conditions. In Japanese there is a word I

often use, *kandokoro*, which means a crucial point that calls for intuition. My intuition is my guide at those key points when answers aren't clear. Everyone has intuition, some more than others, usually depending on the amount of experience they have. I've spent many years trying to create the perfect plant aquarium and I'm still failing. Of course, the plants don't die anymore, but I cannot count the number of times I mistook the amount of water to add, or put in too much CO2 and awoke the next morning to find all the fishes floating dead at the surface. But my intuition grew. When a customer compliments my work, I tell them that while it is true that I raise beautiful aquatic plants now, no one has created the same failures again and again more than I have. Most people won't repeat the same failure, but not me. But I can be glad for one thing, and that is that I always keep notes. When I screw up the same thing a number of different ways, then they are at least all good experiences and gain of lot of practical knowledge from them. Thinking back now, so many plants have died by my hand that it's tragic, but something of all of them survives in me, in my intuition. And in my notebooks, in the same way, a part of my mother lives on.

Nature Aquarium World (TFH, 1992)

INFORMATION



DOOA, an inspiring brand, helps you enjoy aquatic plants more freely. Minimal and easy, and designed as a platform allowing everyone to nurture plants indoors. Feel closer to nature, and bring beauty into your life.

BRAND SITE OPEN



ADA's bold new brand, DOOA, aims to offer a more free and new style of aquarium hobby, taking advantage of amphibious characteristics of aquatic plants. Its newly launched website provides a number of attractive contents, such as DOOA's unique layout styles, user friendly product pages, hobbyists' postings on Instagram and much more. Check it out today, and get all the information you need about DOOA!

<http://dooa.jp/en/>

NEXT AQUA JOURNAL ENGLISH version

AUGUST.2018 vol.274 Release on AUGUST 1st, 2018

STAFF CREDIT

Publisher
Shinobu Amano

Published by
Aqua Design Amano Co.,Ltd.

Printed by
Yamada Photo Process Co.,Ltd.

Editor
Tsuyoshi Oiwa
Masatoshi Abe
Yusuke Homma
Masahiro Sato

Art Direction
NATURE AD DESIGN

Design
Satoshi Maruyama
Ryo Ichikawa

English Translation
Aqua Design Amano Co.,Ltd.

■ All rights reserved. No part of this publication may be reproduced, stored, or transmitted in any form, or by any means electronic, mechanical, or otherwise, without permission from Aqua Design Amano Co., Ltd.

■ Please contact us if you would like to make your opinion and suggestion about this publication.

©2018 AQUA DESIGN AMANO CO.,LTD.

aqua design amano co.,ltd.
8554-1 Urushiyama, Nishikan-ku,
Niigata 953-0054, Japan

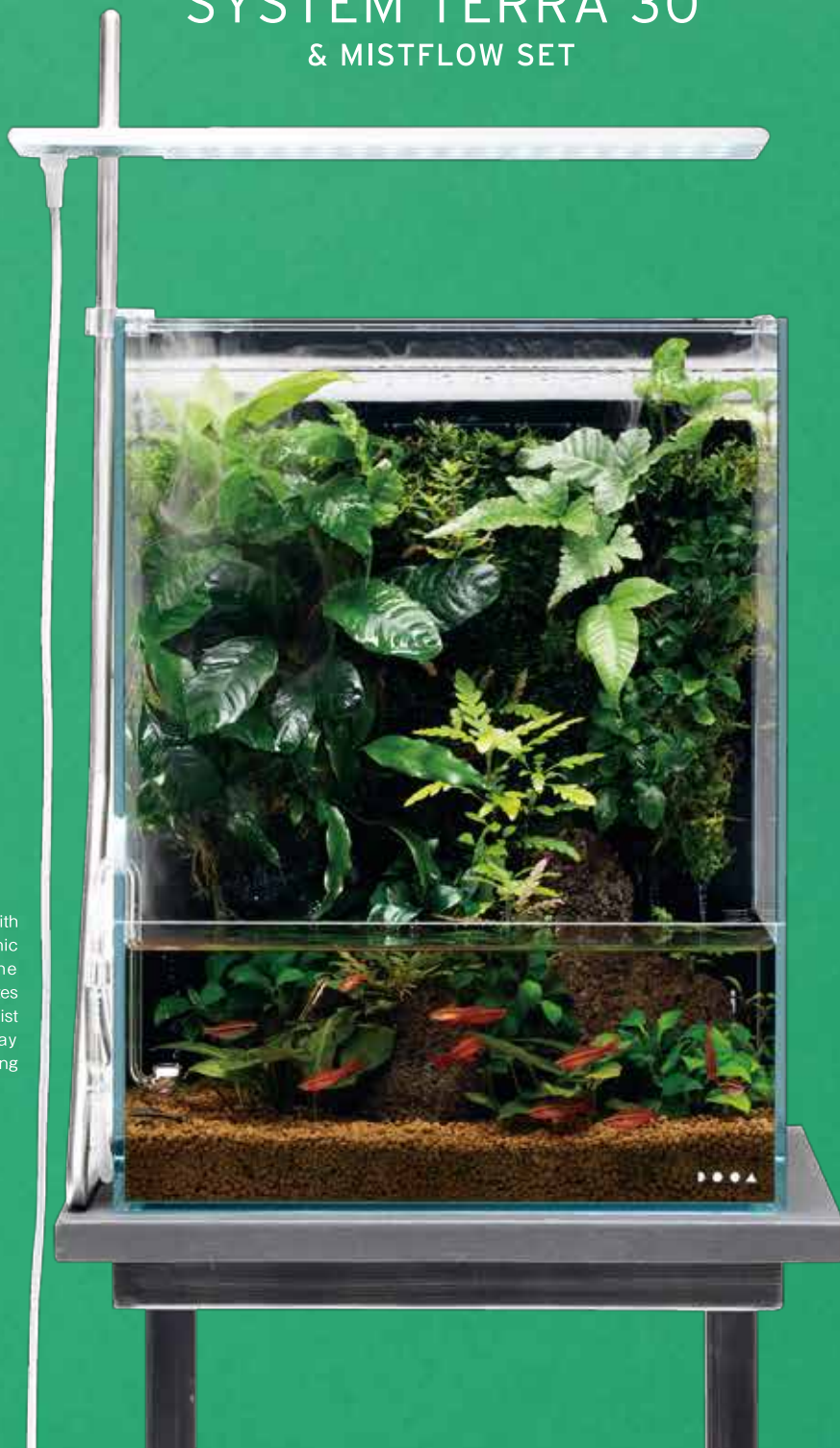
<http://www.adana.co.jp>



DOOA, an inspiring brand, helps you enjoy aquatic plants more freely. Minimal and easy, and designed as a platform allowing everyone to nurture plants indoors. Feel closer to nature, and bring beauty into your life.

Gets more natural and easier to grow plants.

SYSTEM TERRA 30 & MISTFLOW SET



DOOA System TERRA 30 with the newly launched ultrasonic atomizer, MISTFLOW. The advanced aquarium set creates a scene where a super-fine mist from the Cascade spillway gently moistens plants thriving on the wall section.

[COMPLETE SET]

- DOOA Mistflow
- DOOA System TERRA 30
- DOOA Glass Cover
- Cube Garden Hook 5mm
- DOOA Cascade Brush S

※Lighting, CO₂ system, substrate, stand and living organisms not included.

www.dooa.jp/en

aqua design amano co.ltd.