We would like to thank referee #2 for the discussion.

In this study, the authors proposed a new hybrid method to link the two damping factors derived from two traditional approaches. Subsequently, the method was used to calibrate the drag coefficient and the relationship between the drag coefficient and relevant parameters (Re, KC, and Ur) were investigated. The paper is generally well-written. However, there are several major concerns that should be properly addressed before the paper can be considered to be accepted by this journal.

The major concerns:

1. The novelty of the manuscript: the authors mentioned that "Besides, based on local wave height, the exponential damping factor k' can be obtained easily by MS Excel, while the damping factor α' needs professional numerical tools. Therefore, calculating α' by the calibrated k' is much easier than calibrating α' directly by the well documented Eq. (3) which is the advantage of the new method in this study." I agree with the comments provided by the Reviewer#1 that this should not be the main novelty of this manuscript since the calibration of the damping factor α' is a standard procedure and can be easily conducted by commonly used software (such as Matlab or R language).

- This paragraph has been deleted. The novelty of the manuscript can be seen in the reply for the second question.

2. The methodology: It appears that the key Equations (7)-(12) in this manuscript have been derived in the previous study by the authors (Zhang et al., Acta Oceanol. Sin, 2021, in press). Thus, the main contribution lies in the study of the relation between the drag coefficient and three relevant hydraulic parameters? I would suggest the authors to clarify the relationship between their previous study and the current paper.

- (1)Our previous study overlooked the relation between k' and C_D by Kobayashi et al. (1993), and the current study uses this relation. (2)The previous study only used the relation between α' and C_D by Dean (1979) and the relation between α' and C_D by Dalrymple et al. (1984) has been used in this study.

- About the equations, there are several improvements: (1)we found Eq. (12) can be the relation between α' and k' so in this study we tried to prove it further such as in Section 5.1, 5.2, 5.3.3; (2)more data has been collected and we constructed experiments by ourselves; (3)the emergent condition is considered to study the applicability of Eq. (12); (4)the equation has been analyzed further.

- P2,L45. The paragraph has been modified:

"Zhang et al. (2021) had compared these two calibration approaches by these two featured functions directly and yielded a connection between α' and k', then a new equation to predict the drag coefficient had been revealed. However, Zhang et al. (2021) overlooked the relation between k' and C_D by Kobayashi et al. (1993) and only used the relation between α' and C_D by Dean (1979). In this article, using the well documented relation between the damping factor and the drag coefficient by Dalrymple et al. (1984) as well as the mentioned relation by Kobayashi et al. (1993), these two traditional approaches had been compared from another perspective and another connection between α' and k' had been revealed.

Hence, there are two relations between the damping factor and the exponential damping factor from two perspectives, and they are analyzed by 99 cases from collected data and experimental experiments in this study."

- The following paragraph has been added in the end of Section 5.2 in Page 8 to analyze the equation with data:

"Equation (12) also revealed that $\alpha - k = k^2/(2-k) > 0$ since k is smaller than 2 (Zhang et al., 2021). When the vegetation is deeply submerged, the calibrated k close to zero and α is larger than but approximate to k (Eq. (6)); when the vegetation becomes emerged, α and k become relatively large and the difference between them enlarges, which can be seen shown in Figs. 2 and 3. That is to say, Fig. 3 proves that Eq. (12) works well and it includes Eq. (6) already."

- The following paragraph has been added in the end of Section 5.3.2 in Page 10 to analyze the equation with data:

"Additionally, although the fit of cases should not be linear since $k/\alpha = (2-k)/2 < 1$ is not a constant, while if we obtain C_D by calibrating the exponential function for emerged cases, we have a rapid assessment that the value will be approximate 77% of the needed value. Moreover, the result reveals that $k'/\alpha' \approx 0.77$. Combining Eq. (12), $k'L = k$ approximates to 0.46, then $K_X \approx 0.63$ at the end of the vegetation according to Eq. (8). It means that the reduction rate (=1-K_X) of the wave height for the emerged cases is about 37%. Furthermore, if we apply Eq. (12), α is about 0.53 then $K_X \approx 0.65$ according to Eq. (7). These values of K_X are close by α and k which can assess the wave attenuation by emerged vegetation preliminary.

Of course, several parameters can affect the drag effect. In this case, certain cases should be considered instead of use the result from a regression by all the cases with different operating conditions, then the slope of the comparison between the calibrated Cd by Eqs. (3) and (5) will be different so the calculated relative wave height will be different."

- Besides, we looked at the relation between Cd and the hydraulic parameter and revealed that it is not easy to find a simple formula to describe the relation based on data of 99 cases. We also compared different methods for calculating Cd and found the limitation of the methods by Dean (1979) and Kobayashi et al. (1993).

3. Figure 6: It appears that the proposed new method (Eq. 12) functions more or less the same as Eq. (3). Thus, with regard to the calibration of the drag coefficient, what's the difference between the new method and the method proposed by Dalrymple et al. (1984)?

- The result based on Eq. (12) is comparable to the classic Eq. (3), this is because the effectiveness of Eq. (12) which we want to study further in this manuscript. Previously, Cd can be calibrated by Eq. (3) based on the reciprocal function, and by Eq. (5) and the exponential function. Now we found the latter method is only applicable in submerged cases. But we can also use the exponential function to describe the decay of the wave height for emerged cases and calculate the drag coefficient by transforming k to alpha by Eq. (12).

- The following paragraph has been added in Section 5.3.2, Page 10:

"For submerged cases, the drag coefficient by Eq. (5) is close to but smaller than that by Eq. (3), with a slope of 0.96 in Fig. 5; for emerged cased, the former is more smaller than the latter when the drag coefficient is larger. This is consistent to the conclusion in Section 5.2 since C_D has positive correlation with α and k."

- The following paragraph has been added at the end of Section 5.3.3, Page 11:

"Based on the results in Figs. 5 and 6, the exponential damping factor k' can be used to calculate C_D while it needs to be converted to α' based on Eq. (12) instead of to use k' directly."

4. The underlying mechanism and the difference between emerged and submerged conditions: one possible novelty could be the unified expression for the calibration of the drag coefficient both emerged and submerged conditions. However, can authors further explore the underlying mechanism and the difference between these two conditions by means of the new proposed method?

- Equation (3) is a well performed equation to calibrate Cd directly. One the other hand, the following paragraph at the end of Section 5.2 reveals Eq. (5) can only be valid for submerged conditions.:

"Notably, the analytical solution of Kobayashi et al. (1993), i.e., Eq. (5), was obtained and conducted using deeply submerged artificial kelp, and $H(X)^3 \cong H_0 H(X)^2$ was assumed which can only be valid when wave height reduces slightly through submerged vegetated areas and the exponential damping factor is small. This is why Eq. (6) can only be profitable for submerged vegetation."

- If we compare Eqs. (3) and (5) directly and get Eq. (6) which can also be useful when the vegetation is submerged. In other words ,the combination of Eq. (5) and the exponential function has limitation to get the value of Cd. However, the exponential function can also describe the decay of the wave height, if we want to get Cd by the exponential decay of wave height, the relation of Eq. (12) is needed for emerged cases.

■ We will try to study the underlying mechanism and the difference between emerged and submerged conditions from mathematic approach to look at Eqs. (7) and (8) and use the relation between alpha and k.

The minor comments:

1. Please carefully address all the minor comments provided by Reviewer#1.

■ It has been edited.

2. Abstract: both equations and symbols should be avoided.

■ It has been edited.

3. Figures 4-9: in both xlabel and ylabel, the Cd should be corrected as CD

■ It has been edited.

4. Section 4 data collection: Please reorganize this section, for the time being, the authors simply
list the collected data.

■ Section 4 has been modified:

"Besides experiments in this study, observations in published literatures have been collected from Hu et al. (2014), Wu et al. (2011), and Wu and Cox (2015, 2016) as Zhang et al. (2021) presented. The summarized experimental setup has been shown in Table 2. Overall, different operation conditions had been conducted by the authors.

Table 2: Experimental conditions from references

Reference	**Type of plant**	**Plant height/m**	**Plant diameter/m**	**Plant density/ stem m^{-2}**	**Incident wave height/m**	**Length of vegetation/m**	**Depth of water/m**
Hu et al. (2014)	Stiff wooden rods	0.36	0.01	62/139/556 (VD1/VD2/VD3)	0.032~0.202	6	0.25/0.5
Wu et al. (2011)	Birch dowels	0.48/0.63	0.009 4	350/623	0.083/0.084/ 0.085	3.66	0.5
Wu and Cox (2015)	Plastic strips	0.14	0.005	2 100	0.014~0.042	1.8	0.12
Wu and Cox (2016)	Plastic strips	0.14	0.005	1 618	0.015~0.034	0.9	0.12

5. Figure 3: in the legend, "Calculted"

■ It has been edited.

■ Additional Reference:

- He, F., Chen, J., Jiang C.: Surface wave attenuation by vegetation with the stem, root and canopy, Coast. Eng., 152, 103509, https://doi.org/10.1016/j.coastaleng.2019.103509, 2019.