

红树植物厦门老鼠簕(爵床科)的订正

侯学良, 吕 静

(厦门大学 生命科学学院, 福建 厦门 361005)

摘 要: 重新检查了厦门老鼠簕的主模式和副模式标本后, 发现原始文献对其鉴别特征“花……具两个苞片, 无小苞片”描述有误, 应改为“花……具两个小苞片, 一个苞片”。基于标本室和野外观察, 认为厦门老鼠簕在老鼠簕的正常变化范围之内, 应归并到老鼠簕, 不赞同把厦门老鼠簕降级为小花老鼠簕或毛老鼠簕的变种的处理。报道了一个新异名 *Acanthus ilicifolius* var. *xiamenensis*。

关键词: 厦门老鼠簕; 订正; 新异名; 红树植物

中图分类号: Q949.778.6 **文献标识码:** A **文章编号:** 1000-3142(2008)03-0292-03

A note on a mangrove *Acanthus xiamenensis* (Acanthaceae)

HOU Xue-Liang, Lü Jing

(School of Life Sciences, Xiamen University, Xiamen 361005, China)

Abstract: After the holotype and paratypes of *Acanthus xiamenensis* had been rechecked, the author found the diagnostic character “foliis……bracteis 2 oppositis instructis ebracteolatis” was wrongly described in original paper, and it should be revised as “foliis……bracteis 1, bracteolatis 2 oppositis”. Basing on herbaria and field observations, the authors argue that *A. xiamenensis* was fallen to the varieties of *A. ilicifolius*, and should be reduced to *A. ilicifolius*, and did not agree to the treatment that *A. xiamenensis* was degraded into a variety of *A. ebracteatus* or *A. ilicifolius*. A new synonym *Acanthus ilicifolius* var. *xiamenensis* was reported.

Key words: *Acanthus xiamenensis*; revision; new synonym; mangrove

红树植物是生长在热带和亚热带海岸潮间带的木本植物群落(Lin & Fu, 2000)。中国有红树植物 25 种 1 变种(Wang 等, 2003)。老鼠簕属植物全世界约有 30 种, 有 4 种为红树植物(Tomlinson, 1986)。中国有 4 种老鼠簕属植物, 其中 3 种是红树植物, 即老鼠簕(*Acanthus ilicifolius*)、小花老鼠簕(*A. ebracteatus*)、厦门老鼠簕(*A. xiamenensis*)。

老鼠簕和小花老鼠簕广泛分布于世界红树林中, 往往在检索表上易于区分而在野外很难区别, 二者的主要区别是老鼠簕每花下面有小苞片 2 枚, 花瓣长达 3.5 cm, 而小花老鼠簕没有小苞片, 花瓣长达 2.5 cm(Tomlinson, 1986)。

厦门老鼠簕(图版 I、II)和老鼠簕近似, 按原文献(张尧挺, 1985)记载, 它的叶边缘浅波状、侧脉不直贯齿尖, 花有两个对生的苞片, 小苞片缺如, 可与老鼠簕相区别。然而, “花有两个对生苞片”的描述令人生疑。因为在老鼠簕属植物的花序梗上每花着生处只有一枚苞片, 而是在花梗上往往有 2 枚与苞片相似的小苞片。这个疑问在检查了它的模式和副模式标本后得到证实。在这些标本上, 有 2 枚对生的小苞片, 花蕾期可见有 1 枚苞片, 在花开过程中往往脱落。因此, “花具两个苞片缺乏小苞片”的描述是错误的, 应修改为“花有一个苞片, 有两个小苞片”。这一关键特征的修改取消了厦门老鼠簕和老

收稿日期: 2006-08-17 修回日期: 2007-01-18

基金项目: 厦门大学科技创新项目(XDKJCX20041019)[Supported by Science and Technology Innovation Item of Xiamen University(XDKJCX20041019)]

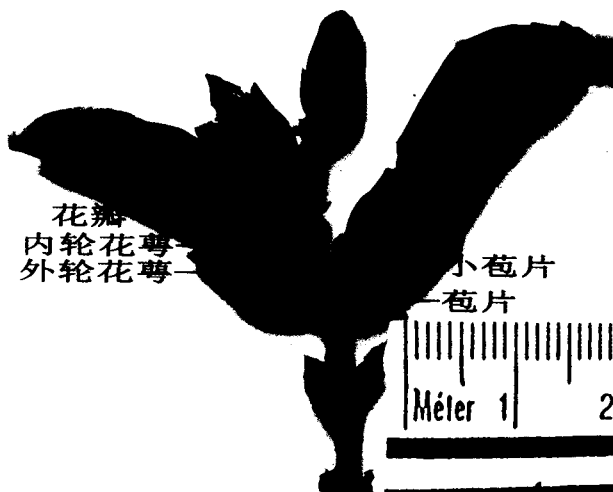
作者简介: 侯学良(1969-), 男, 安徽阜阳人, 博士, 讲师, 从事植物资源和系统演化研究, E-mail: houxueliang@xmu.edu.cn.

老鼠簕的一个重要区别,同时也对把厦门老鼠簕处理为小花老鼠簕的变种的做法提出了质疑。



图版 I 厦门老鼠簕主模式
Plate I Holotype of *Acanthus xiamenensis* R. T. Zhang

那么,现在有必要再来讨论一下厦门老鼠簕和老鼠簕的另一个重要区别:厦门老鼠簕叶的边缘具波状齿,侧脉不直贯齿尖(张尧挺,1985)。笔者通过对大量老鼠簕的野外居群和标本的详细观察,发现它的叶缘从浅波状到剧烈的皱波状有很大变化,甚至在一份标本上就能看到这些变化,如 S. Y. Hu 12782。另外,侧脉到达刺与否和叶缘分裂程度相关,如果边缘是浅波状的,侧脉不达刺;如果边缘剧烈皱波状,侧脉将直贯刺尖。还发现叶的分裂似乎跟海水盐度的高低呈正相关。因此,厦门老鼠簕叶的特征只是老鼠簕叶的正常变化之一。对厦门老鼠簕和老鼠簕的其他特征,如萼片、花瓣、雄蕊、雌蕊、果实和种子等,也作了比较,没有发现二者有什么不



图版 II 厦门老鼠簕花序一部分放大
照片,示苞片和小苞片
Plate II A part of magnified inflorescence
of *Acanthus xiamenensis* R. T. Zhang,
showing the bracts and bractlets

同。邓云飞等(2006)把厦门老虎簕处理为老虎簕的变种,似无必要。胡嘉琪(2002)把厦门老鼠簕处理为小花老鼠簕的变种,主要根据二者缺乏小苞片,因为他当时并没有见到厦门老鼠簕的主模式和副模式。笔者经过对厦门老鼠簕和小花老鼠簕的对比研究,发现厦门老鼠簕的花可达 3.5 cm,有小苞片,而小花老鼠簕花长仅 2.5 cm,缺乏小苞片,二者的区别还是明显的。

综上所述,厦门老鼠簕与老鼠簕在各种性状的形状和大小上都相当一致,在老鼠簕的变化范围之内,而与小花老鼠簕明显不同。因此,不赞同把厦门老鼠簕作为小花老鼠簕的变种;也不赞同把厦门老虎簕处理为老虎簕的变种;厦门老鼠簕应归并到老鼠簕为宜,现处理如下: *Acanthus ilicifolius* L. Sp. Pl. 639. 1753; Hemsl. in Journ. Linn. Soc. Bot. 26: 242. 1890; C. B. Clarke in Hook. f. Fl. Brit. Ind. 4: 481. 1884; R. Ben. in Fl. Gen. Indo-Chine 4: 697. 1935; Fl. Hainan 3: 553. 1974; Ic. Cor. Sin. 4: 166. t. 5745. 1975.

Acanthus xiamenensis R. T. Zhang in Wuyi Sci. Journ. 5: 237. f. 1-3. 1985. — *Acanthus ebracteatus* var. *xiamenensis* (R. T. Zhang) C. Y. Wu et C. C. Hu in Fl. Reip. Pop. Sin. 70: 47. t. 4: 9. 2002. *Acanthus ilicifolius* L. var. *xiamenensis* (R. T. Zhang) Y. F. Deng, N. H. Xia & H. B. Chen in J. Trop. Subtrop. Bot. 14 (6): 530.

2006. '*illici folius*' syn. nov. Type: China (中国): Longhai (龙海), Fujian (福建), May 31, 1984, R. T. Zhang (张尧挺) 707 (holotype, AU!)

Specimens examined:

China, Fujian (福建): Longhai (龙海), H. B. Chen (陈恒彬) 24 (paratype of *A. xiamenensis*, AU); ibid, R. T. Zhang (张尧挺) 708 (paratype of *A. xiamenensis*, AU); ibid, X. L. Hou & W. Q. Wang (侯学良和王文卿) 9294 (AU); ibid, P. Lin (林鹏) 8008 (AU); Yunxiao (云霄), 276—6 1160 (PE); ibid, R. T. Zhang (张尧挺) 1746 (AU); ibid, Z. X. Lin 55 (AU); ibid, P. Lin (林鹏) 8001 (AU). Zhangpu (漳浦), H. B. Chen (陈恒彬) 21 (paratype of *A. xiamenensis*, AU). Guangdong (广东): Dongguan (东莞), Z. F. Wei (卫兆芬) 122075 (PE); Longfeng (隆丰), Z. F. Wei (卫兆芬) 121180 (PE); Gao-dian (高店), M. X. Huang (黄茂先) 110203 (PE); Pak. Shaan Village, Honam, F. A. McIure 1657 (PE); Yangjiang (阳江), anonymous 490 (PE). Guangxi (广西): Fangcheng (防城), Hepu Exped. of the Chinese Academy of Sciences (中国科学院合浦调查队) 2575 (PE); Dongxing (东兴), Hepu Exped. of the Chinese Academy of Sciences (中国科学院合浦调查队) 2337 (PE). Hainan (海南): Haikou (海口), X. L. Hou & W.

Q. Wang (侯学良和王文卿) 994 (AU); Wenchang (文昌), X. L. Hou & W. Q. Wang (侯学良和王文卿) 9100 (AU), 9101 (AU). Hong Kong (香港): New Territory, Y. Tsiang (蒋英) 169 (PE); S. Y. Hu (胡秀英) 12782 (PE), 13544 (PE).

致谢 在标本查阅和野外调查中得到中国科学院植物标本馆和海南东寨港国家级自然保护区的支持和帮助, 深表谢意。

参考文献:

- 胡嘉琪. 2002. 老虎筋属 [M] // 中国植物志编辑委员会. 中国植物志 (第 70 卷). 北京: 科学出版社: 44—48
- Deng YF (邓云飞), Xia NH (夏念和), Chen HB (陈恒彬). 2006. A new combination in Chinese *Acanthus* (Acanthaceae) (中国爵床科老鼠筋属一新组合) [J]. *J Trop Subtrop Bot* (热带亚热带植物学报), 14(6): 530—531
- Lin P, Fu Q. 2000. Environmental Ecology and Economic Utilization of Mangroves in China [M]. Beijing & Verlag Berlin Heidelberg: China Higher Education Press & Springer: 1—109
- Tomlinson P B. 1986. The Botany of Mangroves [M]. Cambridge: Cambridge University Press: 67—375
- Wang BS, Liang SC, Zhang WY, et al. 2003. Mangrove flora of the world [J]. *Acta Bot Sin*, 45(6): 644—653
- Zhang RT (张尧挺). 1985. A new species of *Acanthus* Linn. from Fujian (Family Acanthaceae) (福建老鼠筋属植物 (爵床科) 一新种) [J]. *Wuyi Sci J* (武夷科学), 5: 237—239

2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3123, 3124, 3125, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157, 3158, 3159, 3160, 3161, 3162, 3163, 3164, 3165, 3166, 3167, 3168, 3169, 3170, 3171, 3172, 3173, 3174, 3175, 3176, 3177, 3178, 3179, 3180, 3181, 3182, 3183, 3184, 3185, 3186, 3187, 3188, 3189, 3190, 3191, 3192, 3193, 3194, 3195, 3196, 3197, 3198, 3199, 3200, 3201, 3202, 3203, 3204, 3205, 3206, 3207, 3208, 3209, 3210, 3211, 3212, 3213, 3214, 3215, 3216, 3217, 3218, 3219, 3220, 3221, 3222, 3223, 3224, 3225, 3226, 3227, 3228, 3229, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3268, 3269, 3270, 3271, 3272, 3273, 3274, 3275, 3276, 3277, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3291, 3292, 3293, 3294, 3295, 3296, 3297, 3298, 3299, 3300, 3301, 3302, 3303, 3304, 3305, 3306, 3307, 3308, 3309, 3310, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3344, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 3374, 3375, 3376, 3377, 3378, 3379, 3380, 3381, 3382, 3383, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3393, 3394, 3395, 3396, 3397, 3398, 3399, 3400, 3401, 3402, 3403, 3404, 3405, 3406, 3407, 3408, 3409, 3410, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3418, 3419, 3420, 3421, 3422, 3423, 3424, 3425, 3426, 3427, 3428, 3429, 3430, 3431, 3432, 3433, 3434, 3435, 3436, 3437, 3438, 3439, 3440, 3441, 3442, 3443, 3444, 3445, 3446, 3447, 3448, 3449, 3450, 3451, 3452, 3453, 3454, 3455, 3456, 3457, 3458, 3459, 3460, 3461, 3462, 3463, 3464, 3465, 3466, 3467, 3468, 3469, 3470, 3471, 3472, 3473, 3474, 3475, 3476, 3477, 3478, 3479, 3480, 3481, 3482, 3483, 3484, 3485, 3486, 3487, 3488, 3489, 3490, 3491, 3492, 3493, 3494, 3495, 3496, 3497, 3498, 3499, 3500, 3501, 3502, 3503, 3504, 3505, 3506, 3507, 3508, 3509, 3510, 3511, 3512, 3513, 3514, 3515, 3516, 3517, 3518, 3519, 3520, 3521, 3522, 3523, 3524, 3525, 3526, 3527, 3528, 3529, 3530, 3531, 3532, 3533, 3534, 3535, 3536, 3537, 3538, 3539, 3540, 3541, 3542, 3543, 3544, 3545, 3546, 3547, 3548, 3549, 3550, 3551, 3552, 3553, 3554, 3555, 3556, 3557, 3558, 3559, 3560, 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577, 3578, 3579, 3580, 3581, 3582, 3583, 3584, 3585, 3586, 3587, 3588, 3589, 3590, 3591, 3592, 3593, 3594, 3595, 3596, 3597, 3598, 3599, 3600, 3601, 3602, 3603, 3604, 3605, 3606, 3607, 3608, 3609, 3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3618, 3619, 3620, 3621, 3622, 3623, 3624, 3625, 3626, 3627, 3628, 3629, 3630, 3631, 3632, 3633, 3634, 3635, 3636, 3637, 3638, 3639, 3640, 3641, 3642, 3643, 3644, 3645, 3646, 3647, 3648, 3649, 3650, 3651, 3652, 3653, 3654, 3655, 3656, 3657, 3658, 3659, 3660, 3661, 3662, 3663, 3664, 3665, 3666, 3667, 3668, 3669, 3670, 3671, 3672, 3673, 3674, 3675, 3676, 3677, 3678, 3679, 3680, 3681, 3682, 3683, 3684, 3685, 3686, 3687, 3688, 3689, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3698, 3699, 3700, 3701, 3702, 3703, 3704, 3705, 3706, 3707, 3708, 3709, 3710, 3711, 3712, 3713, 3714, 3715, 3716, 3717, 3718, 3719, 3720, 3721, 3722, 3723, 3724, 3725, 3726, 3727, 3728, 3729, 3730, 3731, 3732, 3733, 3734, 3735, 3736, 3737, 3738, 3739, 3740, 3741, 3742, 3743, 3744, 3745, 3746, 3747, 3748, 3749, 3750, 3751, 3752, 3753, 3754, 3755, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 3763, 3764, 3765, 3766, 3767, 3768, 3769, 3770, 3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3779, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 3787, 3788, 3789, 3790, 3791, 3792, 3793, 3794, 3795, 3796, 3797, 3798, 3799, 3800, 3801, 3802, 3803, 3804, 3805, 3806, 3807, 3808, 3809, 3810, 3811, 3812, 3813, 3814, 3815, 3816, 3817, 3818, 3819, 3820, 3821, 3822, 3823